

STRUCTUAL STEEL POST FOR GROUND MOUNTED SIGNS											
POST DES. NO.*	NOM SIZE	TORQUE AND HIGH STRENGTH BOLTS	BASE CONNECTION DATA TABLE (mm)								
			A	B	C	D	E	F	G	W	R
1	W150x13	16 mm ROUND x 70 mm 39 Nm	128	51	32	70	29	19	13	6	9
2	W150x22										
3	W200x27										
4	W250x33	19 mm ROUND x 90 mm 63 mm	153	57	35	89	32	25	19	8	10
5	W250x39										
6	W310x39										

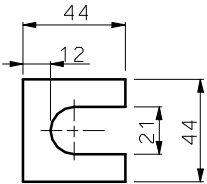
POST AND FOOTING DATA TABLE												
POST DES. NO. ✱	NOM. SIZE	MASS kg/m	STUB LENGTH (mm)	DIA. (mm)	LEVEL GROUND		1:6 GRADE		1:4 GRADE		1:2 OR 1:3 GRADE	
					DEPTH (m)	m³	DEPTH (m)	m³	DEPTH (m)	m³	DEPTH (m)	m³
1	W150	13	915	380	915	0.11	965	0.12	990	0.13	1065	0.13
2	W150	22	1220	610	1220	0.36	1270	0.38	1295	0.39	1370	0.41
3	W200	27	1370	710	1370	0.54	1420	0.56	1445	0.57	1525	0.60
4	W250	33	1525	915	1525	1.00	1575	1.04	1600	1.06	1675	1.11
5	W250	39	1525	915	1525	1.00	1600	1.05	1650	1.09	1755	1.16
6	W310	39	1675	915	1675	1.10	1755	1.16	1805	1.19	1905	1.26

SHEET METAL BOLT RETAINER CUT FROM 0.39 mm GALVANIZED SHEET METAL. PLACE BETWEEN BASE PLATES. SIZE VARIES TO FIT PLATE. BOLT HOLES TO BE 2 mm LARGER THAN REQUIRED BOLT SIZE.

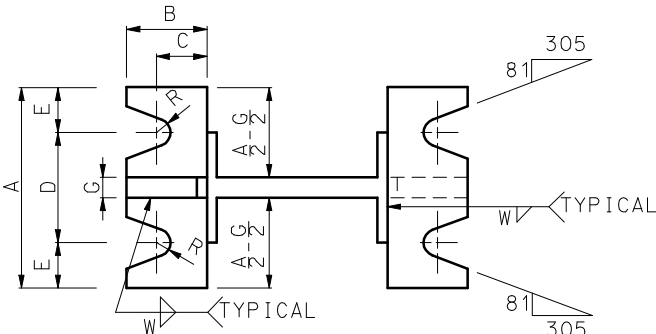


BOLT RETAINER

* FOR POST DESIGNS NUMBERS 3, 4, 5 AND 6 HAVING WEIGHTS GREATER THAN 27 kg/m., POSTS SHALL BE SPACED AT LEAST 2.1 m. APART. FOR POST DESIGNS NUMBERS 1 AND 2, POSTS MAY BE SPACED LESS THAN 2.1 m. APART. DO NOT USE THREE NUMBER 1 OR 2 POSTS WITH A SIGN WIDTH OF LESS THAN 3.15 m.

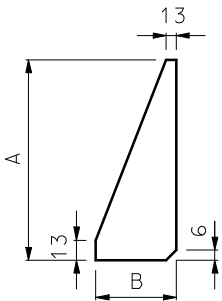


SHIM

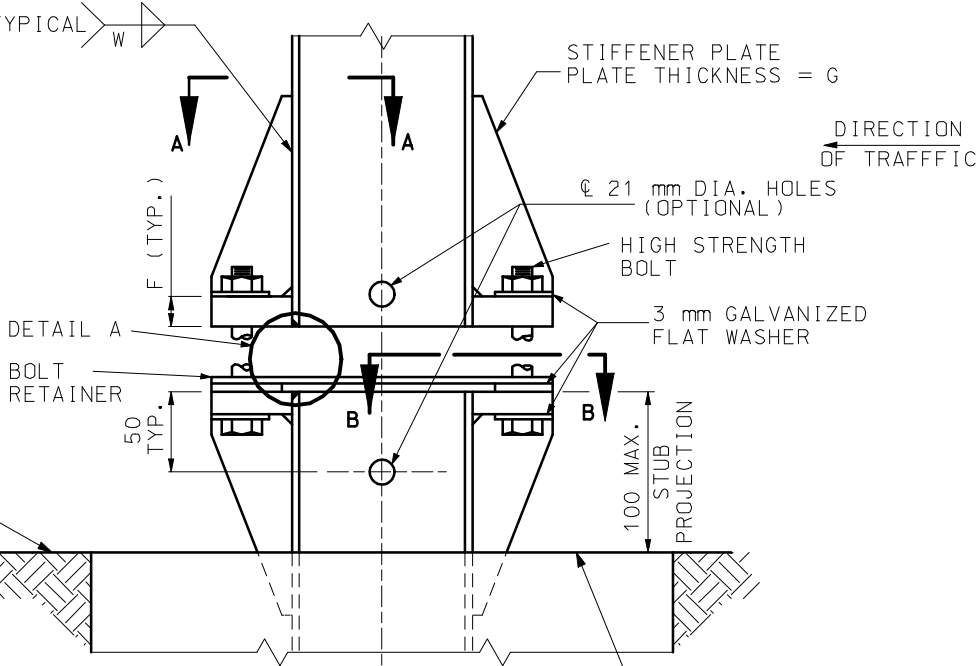


SECTION A-A

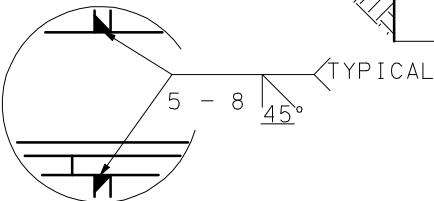
SECTION B-B
POST AND FOOTING



STIFFENER PLATE

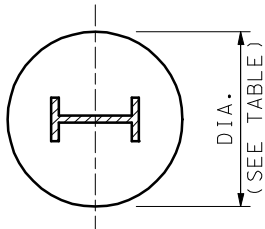


ELEVATION

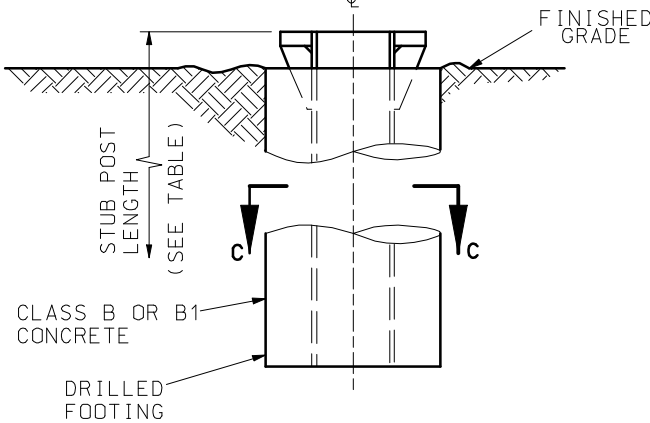


DETAIL A

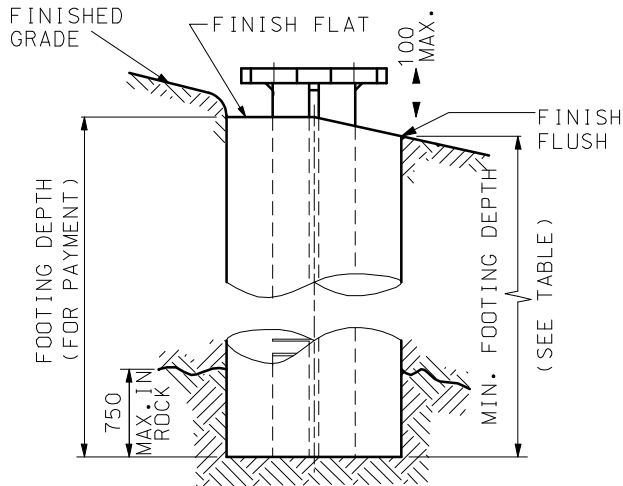
TOP OF FOOTING, FLUSH WITH FINISHED FLAT GRADE. SEE "FOOTING DETAIL" FOR FOOTINGS ON SLOPES.



SECTION C-C



STUB DETAIL



FOOTING DETAIL

GENERAL NOTES:

ALL DIMENSIONS SHOWN ARE IN mm UNLESS OTHERWISE NOTED.

DESIGN SPECS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS. LUMINAIRES AND TRAFFIC SIGNALS - 1985.

POSTS TO BE GALVANIZED AFTER FABRICATION.

METAL PROJECTING BEYOND THE PLANE OF THE PLATE FACE WILL NOT BE ALLOWED.

REMOVE ALL GALVANIZING RUNS OR BEADS IN THE WASHER AREA.

ALL STRUCTURAL STEEL STIFFENER PLATES AND BASE PLATES, FOR GROUND MOUNTED SIGNS SHALL MEET THE REQUIREMENTS OF ASTM A 36 OR AASHTO M 223 345 MPa, OR AASHTO 222, MINIMUM YIELD 345 MPa.

IN THE EVENT THE DISTANCE BETWEEN THE TOP OF THE FOOTING AND THE BOTTOM OF THE SIGN IS LESS THAN 2.3 m, THE SIGN HEIGHT AND POST LENGTH IS TO BE INCREASED SUFFICIENTLY TO ACCOMMODATE THIS MINIMUM SPACING.

HINGE PLATES NOT REQUIRED ON SINGLE POST SIGNS OR ANY SIGNS USING PIPE POSTS.

NUTS ON HINGE PLATE BOLTS SHALL BE TIGHTENED TO THE REQUIRED MINIMUM BOLT TENSION VALUES SHOWN IN TABLE 1 SEC. 1080 OF THE STANDARD SPECIFICATIONS.

THE NUT SHALL BE FREE RUNNING. IF THE NUT WILL NOT SPIN ON THE BOLT BECAUSE OF GALVANIZING IRREGULARITIES, A LUBRICANT SHALL BE APPLIED.

ALL BREAKAWAY ASSEMBLY BOLTS SHALL BE TIGHTENED IN A SYSTEMATIC MANNER TO THE PRESCRIBED TORQUE SHOWN ON THIS DRAWING.

EACH BREAKAWAY ASSEMBLY BOLT SHALL BE LOOSENED AND RE-TIGHTENED TO THE REQUIRED TORQUE IN THE SAME ORDER AS THE INITIAL TIGHTENING.

THE THREADS SHALL BE BURRED AT THE NUT USING A CENTER PUNCH TO PREVENT NUT FROM LOOSENING.

POST LENGTH QUANTITY SHOWN ON PLANS INCLUDES STUB.

13 mm X 65 mm HIGH STRENGTH. BOLTS FOR PIPE POSTS SHALL BE OF THE DESIGNATION AASHTO M 164 OR ASTM A449. ALL OTHER H.S. BOLTS SHALL BE OF THE DESIGNATION AASHTO M 164.

FURNISH TWO 0.3 mm± AND TWO 0.08 mm± THICK SHIMS PER POST FROM BRASS SHIM STOCK OR STRIP, DESIGNATION ASTM B 36. SHIM AS REQUIRED TO PLUMB POST.

HIGH STRENGTH BOLTS WITH HEX NUT AND THREE WASHERS WITH EACH BOLT ARE TO BE GALVANIZED.

OPTIONAL HOLES (21 mm ROUND FOR "I" SHAPE POSTS AND 14 mm ROUND FOR PIPE POST BASE PLATES) AS SHOWN IN "ELEVATIONS" ARE TO BE USED AS AID FOR GALVANIZING ONLY.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION			
SIGN MOUNTING DETAILS BREAKAWAY ASSEMBLIES FOR GROUND MOUNTED SIGNS			
DATE: _____	EFFECTIVE: 11-01-2006	M903.03BD	1 11

WIDE FLANGE STRUCTURAL STEEL POSTS DESIGN DATA

POST DES. NO.	NOM. SIZE (mm)	MASS kg/m	DEPTH (mm)	FLANGE		WEB THICK (mm)
				WIDTH (mm)	THICK (mm)	
1	W150	13	150	100	5.5	4.32
2	W150	22	152	152	6.6	5.84
3	W200	27	207	133	8.4	5.84
4	W250	33	258	146	9.1	6.10
5	W250	39	262	147	11.2	6.60
6	W310	39	310	165	9.7	5.84

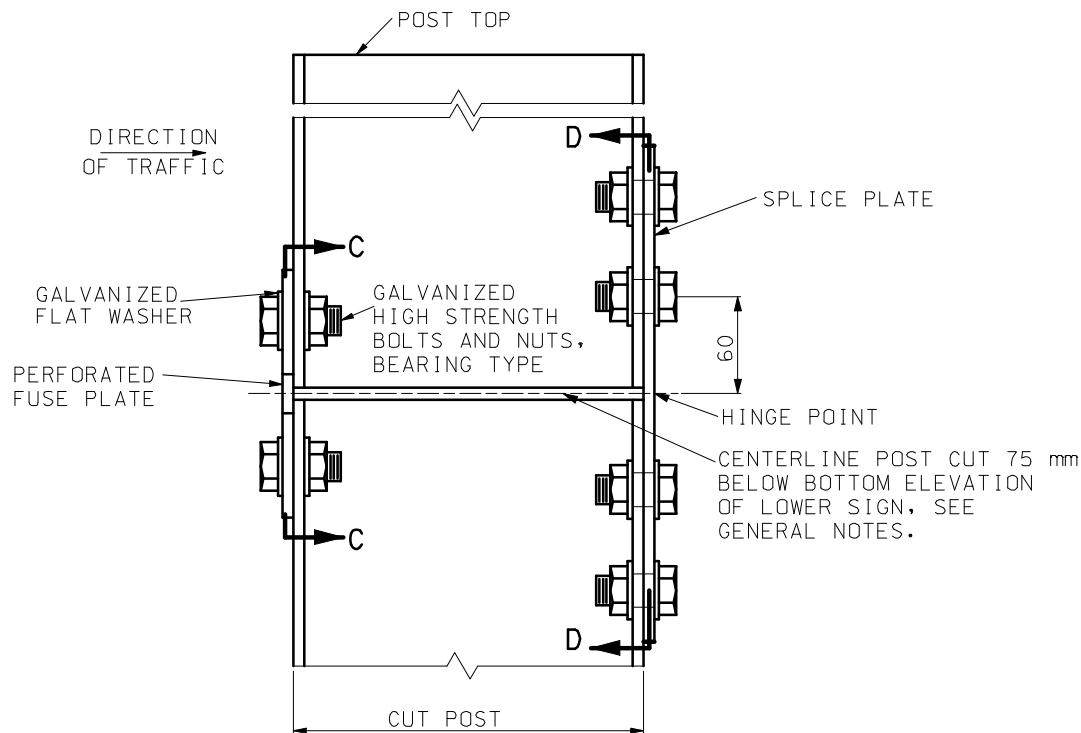
THE WEIGHT OF STRUCTURAL STEEL POSTS SHOWN IN THE CONTRACT HAS BEEN COMPUTED USING THE WEIGHTS SHOWN.

PERFORATED FUSE PLATE DATA TABLE

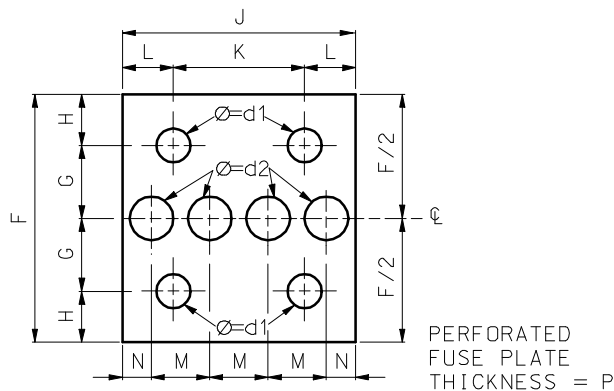
POST DESIGN NO.	F (mm)	G (mm)	H (mm)	J (mm)	K (mm)	L (mm)	M (mm)	N (mm)	d1 (mm)	d2 (mm)	P (mm)	BOLT DIA. (mm)	MASS (EA.) (kg)
1	108	25	29	102	57	22	25	13	14	19	5	13	0.34
2	127	32	32	152	89	32	38	19	17	32	6	16	0.76
3	127	32	32	133	70	32	32	19	17	27	6	16	0.68
4	152	38	38	146	70	38	35	21	21	29	8	19	1.14
5	152	38	38	146	70	38	35	21	21	29	8	19	1.14
6	152	38	38	165	89	38	41	21	21	33	8	19	1.27

SPLICE PLATE DATA TABLE

POST DESIGN NO.	H (mm)	J (mm)	K (mm)	L (mm)	U (mm)	d1 (mm)	BOLT DIA. (mm)	MASS (EA.) (kg)
1	29	102	57	22	13	14	13	0.34
2	32	152	89	32	19	17	16	0.76
3	32	133	70	32	19	17	16	0.68
4	38	146	70	38	21	21	19	1.14
5	38	146	70	38	21	21	19	1.14
6	38	165	89	38	21	21	19	1.27



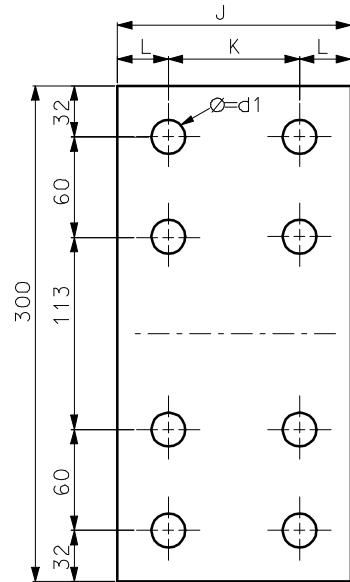
ELEVATION
HINGE PLATE DETAIL



ELEVATION C-C

ALL HOLES SHALL BE DRILLED. ALL PLATE CUTS SHALL PREFERABLY BE SAW CUTS. HOWEVER: FLAME CUTTING WILL BE PERMITTED PROVIDED ALL EDGES ARE GROUND.

PERFORATED FUSE PLATE AND SPICE PLATE SHALL BE FABRICATED FROM ASTM A 36 STRUCTURAL STEEL.



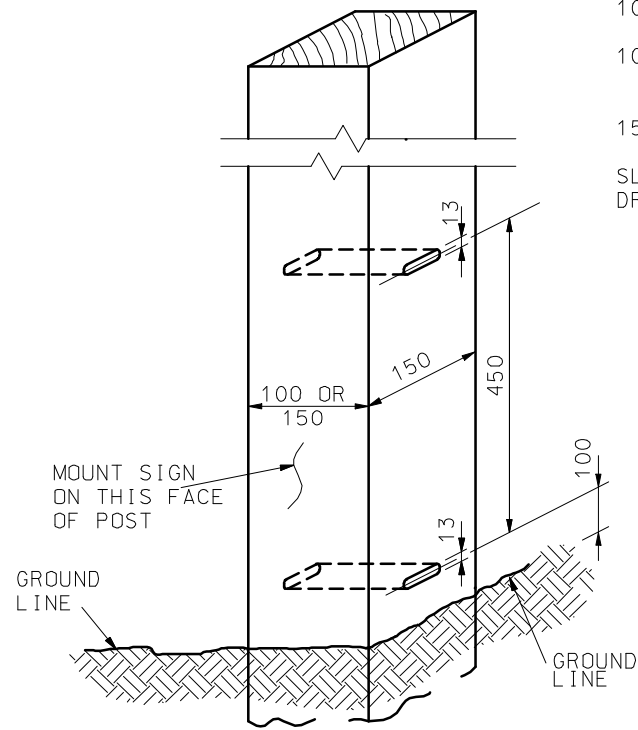
ELEVATION D-D

GENERAL NOTE:

ALL DIMENSIONS SHOWN ARE IN mm UNLESS OTHERWISE NOTED.

FOR ROADWAYS WHERE TRAFFIC MAY STRIKE THE BACKSIDE OF THE POST, PERFORATED FUSE PLATES SHALL BE INSTALLED ON BOTH SIDES OF THE POST.

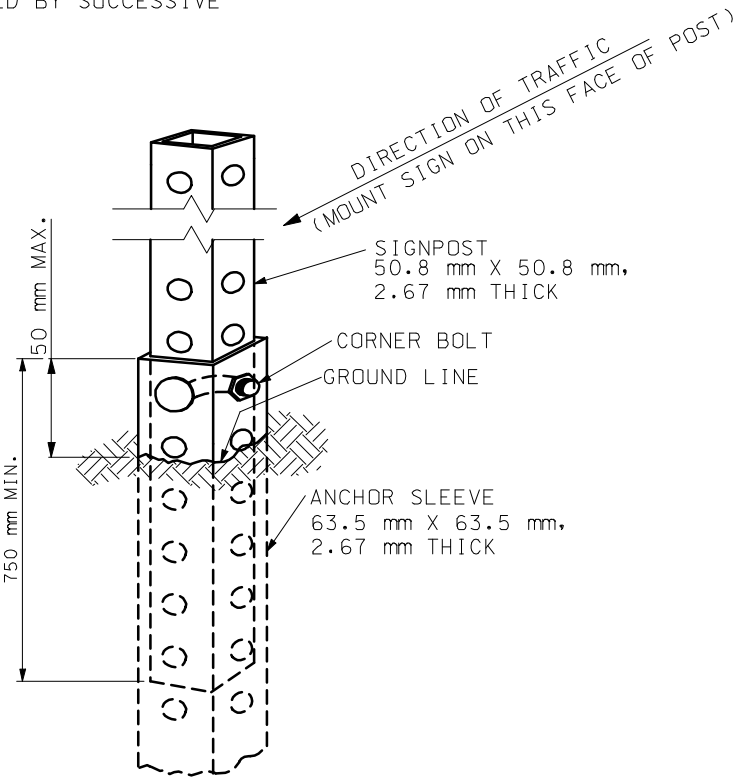
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION			
		SIGN MOUNTING DETAILS BREAKAWAY ASSEMBLIES FOR GROUND MOUNTED SIGNS	
DATE: _____	EFFECTIVE: 11-01-2006	M903.03BD	2 11



WOOD POST DETAIL

- 100 mm X 100 mm WOOD POST – NO SLOTS OR HOLE REQUIRED
- 100 mm X 150 mm WOOD POST – 38 mm X 13 mm SLOT ON 150 mm SIDE OR 38 mm DIA. HOLE ON 150 mm SIDE
- 150 mm X 150 mm WOOD POST – 50 mm X 13 mm SLOT OR 50 mm DIA. HOLE

SLOT ACROSS NEUTRAL AXIS FORMED BY SUCCESSIVE DRILLING WITH 13 mm BIT.



THE SIGNPOST IS ATTACHED TO THE ANCHOR SLEEVE WITH THE CORNER BOLT PER MANUFACTURER’S SPECIFICATION.

IN TEMPORARY INSTALLATIONS, A SPLICE MAY BE POSITIONED ENTIRELY BETWEEN 450 mm AND 1500 mm ABOVE GROUND LINE TO ACCOMMODATE READILY AVAILABLE STOCK. THE SPLICE SHALL CONSIST OF A 300 mm PIECE OF 44 mm TUBE, INSERTED 150 mm INTO BOTH THE UPPER AND LOWER SIGNPOST SECTIONS AND CORNER-BOLTED AT BOTH ENDS.

PERFORATED SQUARE STEEL TUBE POST DETAIL

SPLICE SHALL BE POSITION ENTIRELY BETWEEN GROUND LINE AND 450 mm ABOVE GROUND LINE.

IN TEMPORARY INSTALLATIONS, THE SPLICE MAY BE POSITIONED BETWEEN 450 mm AND 1500 mm ABOVE GROUND LINE. PLACED TO ENTIRELY ELIMINATE THE NEED FOR AN ADDITIONAL SPLICE WHEN READILY AVAILABLE STOCK IS USED.

ONLY ONE SPLICE WILL BE ALLOWED PER POST.

USE OF SPLICE IS OPTIONAL.

POST TYPE

SIGN AREA (SQ. m)	U-CHANNEL	WOOD	PERFORATED SQUARE STEEL TUBING
≤ 0.90	1 – 4.5 kg/m*	1 – 100mm X 100mm*	1 – 50.8mm 12 GA.*
> 0.90 ≤ 1.44	2 – 4.5 kg/m	2 – 100mm X 100mm 1 – 100mm X 150mm*	2 – 50.8mm 12 GA.
> 1.44 ≤ 2.16	2 – 4.5 kg/m	2 – 100mm X 150mm	3 – 50.8mm 12 GA.**
> 2.16 ≤ 2.70	3 – 4.5 kg/m	2 – 100mm X 150mm	N/A
> 2.70 ≤ 4.50	N/A	2 – 150mm X 150mm	N/A

* SIGNS GREATER THAN 1.2m IN WIDTH, EXCEPT DIAMOND SHAPE SIGNS, REQUIRE TWO POSTS.

** REQUIRES SLIP BASE PER MANUFACTURER’S RECOMMENDATION.

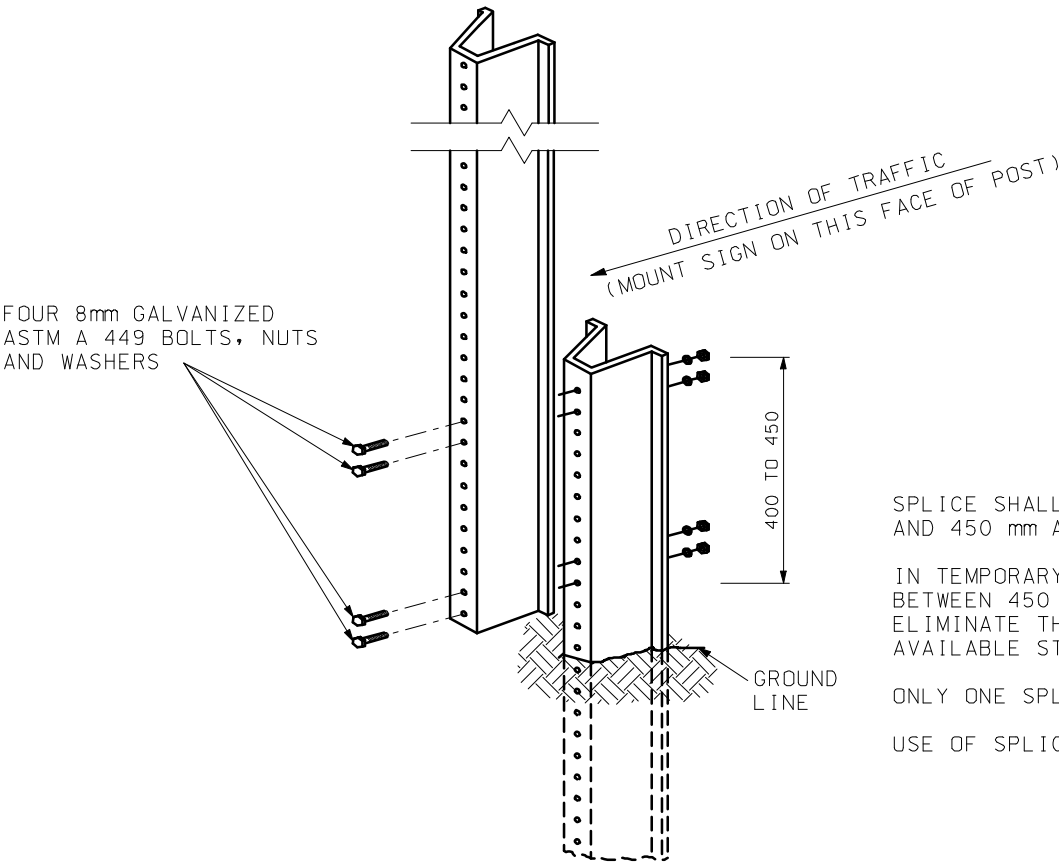
POST SIZE REQUIREMENTS

GENERAL NOTES:

ALL DIMENSIONS SHOWN ARE IN mm UNLESS OTHERWISE NOTED.

ALL POSTS SHALL BE EMBEDDED A MINIMUM OF 910 cm.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION			
		HIGHWAY SIGNING POST MOUNTING DETAILS	
DATE: _____	EFFECTIVE: 11-01-2006	M903.03BD	3 11



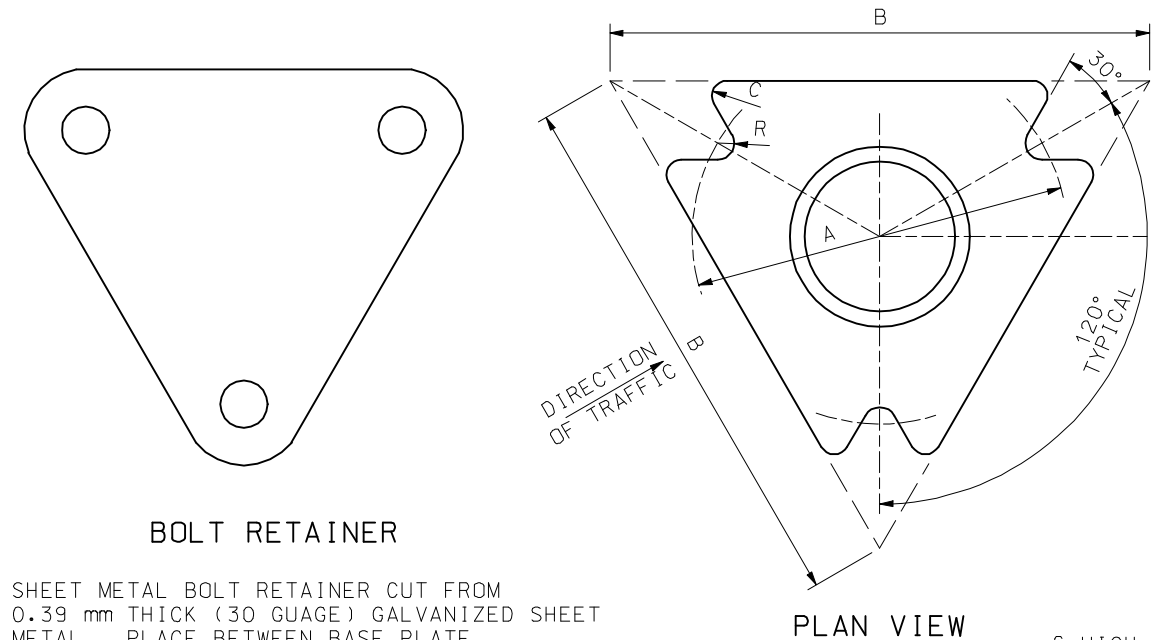
U-CHANNEL POST DETAIL

ROUND PIPE POST FOR GROUND MOUNTED SIGNS

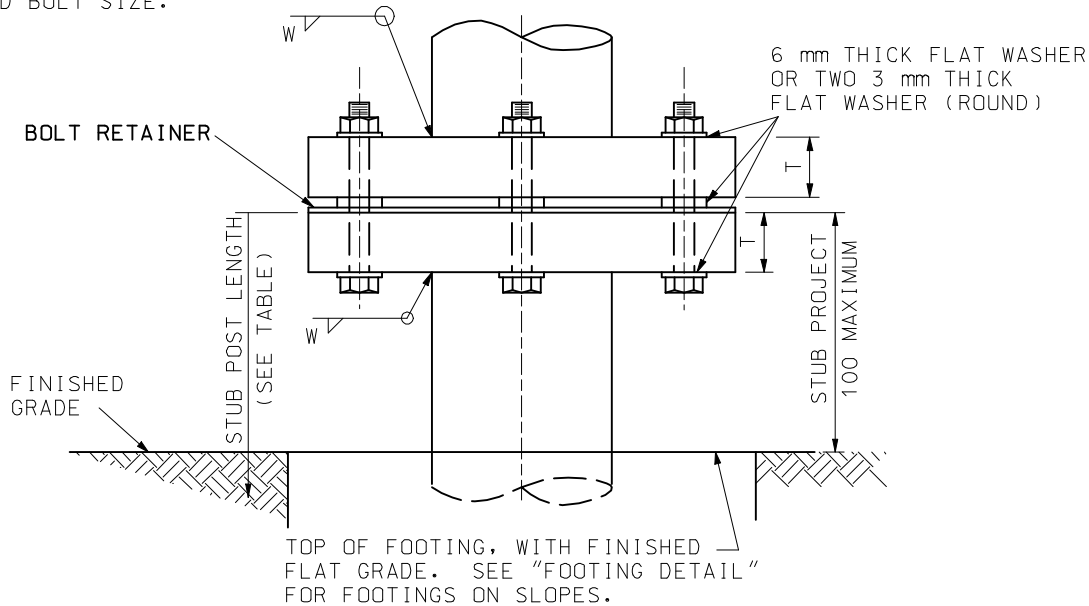
NOMINAL PIPE SIZE (mm)	BOLT DATA			BASE CONNECTION DATA TABLE (mm)					
	SIZE (mm)	LENGTH (IN.)	TORQUE Nm	A	B	C	R	T	W
65 & 75	13	90	15.8	159	229	6	7	25	6
100	16	95	39.0	183	254	6	10	25	8

ROUND PIPE POST AND FOOTING DATA TABLE

NOM. SIZE (mm)	MASS kg/m	STUB LENGTH (mm)	FOOTING		CONCRETE m³
			DIA. (mm)	DEPTH (mm)	
65	8.62	1310	305	1370	0.10
75	11.28	1310	305	1370	0.10
100	16.06	1615	460	1675	0.275

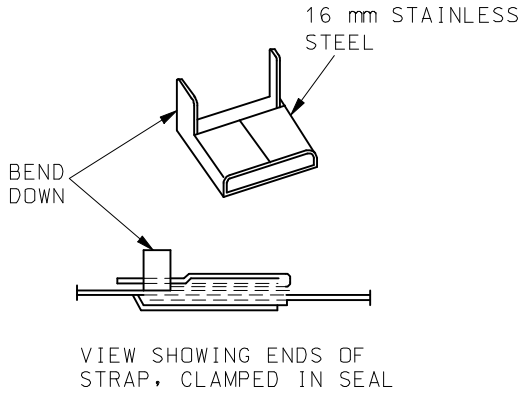


SHEET METAL BOLT RETAINER CUT FROM 0.39 mm THICK (30 GAUGE) GALVANIZED SHEET METAL. PLACE BETWEEN BASE PLATE. SIZE VARIES TO FIT PLATE. BOLT SHALL BE 2 mm LARGER THAN REQUIRED BOLT SIZE.

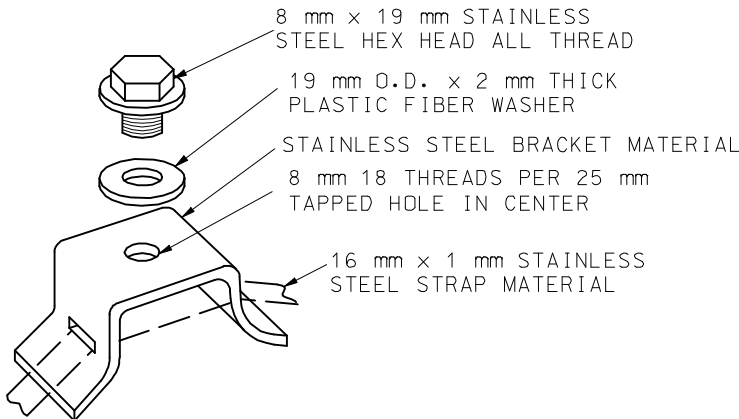


ELEVATION
(STEEL PIPE POST BASE CONNECTION)
MULTI-DIRECTION SLIP BASE

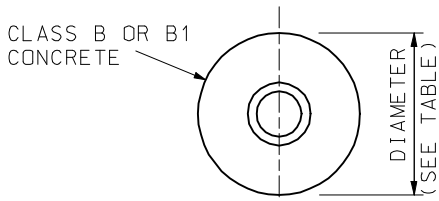
* PIPE 75 mm DIA. AND UNDER;
- 600 mm MAXIMUM IN ROCK,
PIPE OVER 600 mm DIA.;
900 mm MAXIMUM IN ROCK



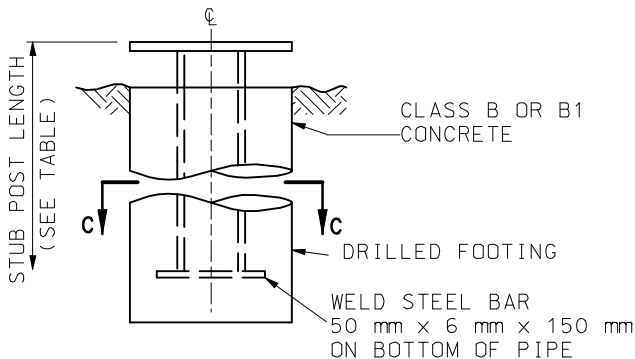
STRAP SEAL



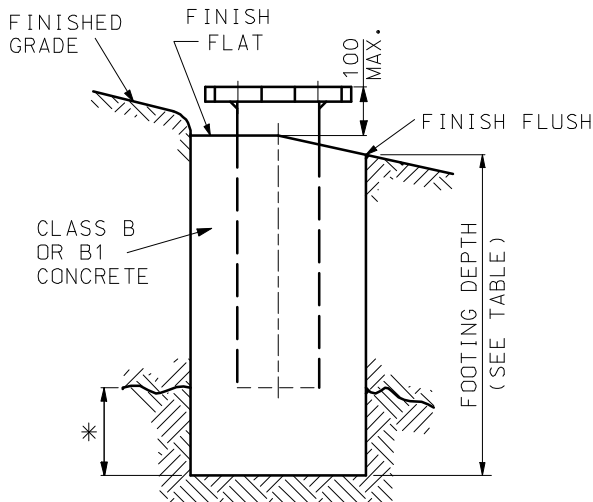
FLARED LEG SIGN BRACKET



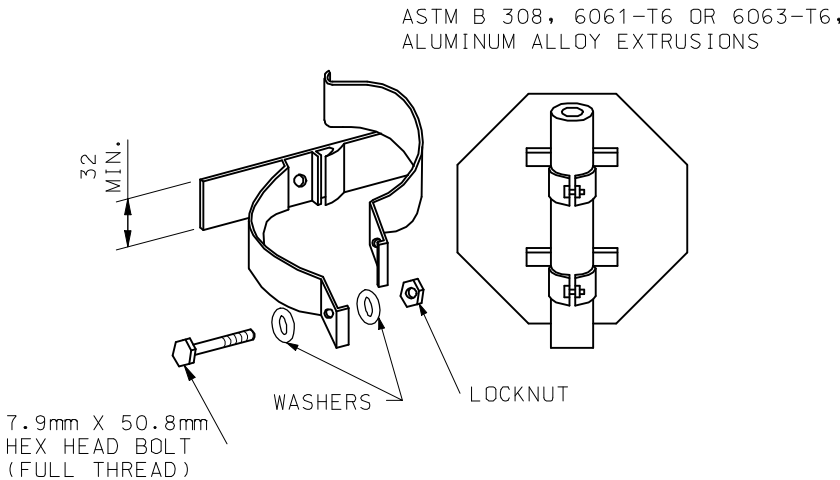
SECTION C-C



FOUNDATION DETAIL
SLIP BASE ASSEMBLIES

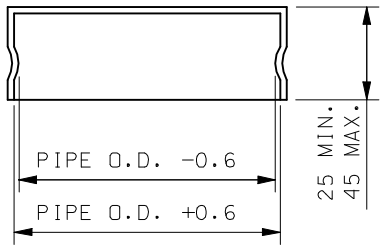


FOOTING DETAIL



STAINLESS STEEL HARDWARE
CLAMP TYPE SIGN SUPPORTS
FOR PIPE POST

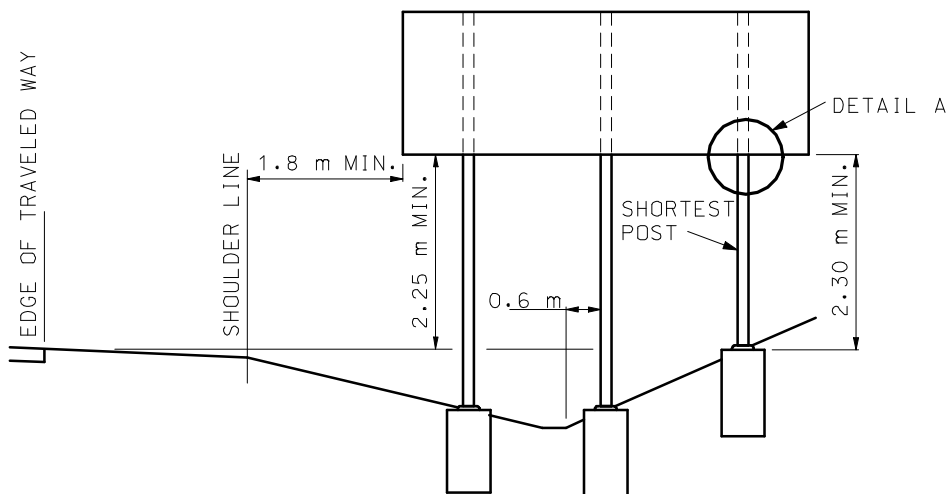
ROLLED CRIMP TO ENGAGE PIPE O.D.



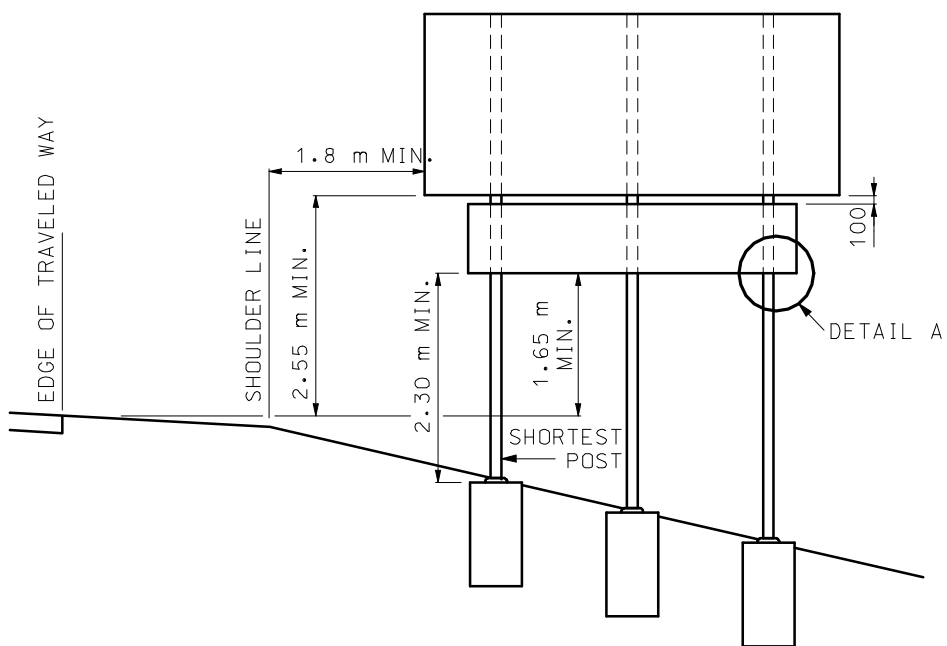
FRICTION CAP

GENERAL NOTE:
ALL DIMENSIONS SHOWN ARE IN mm UNLESS OTHERWISE NOTED.
REFER TO THE GENERAL NOTES ON SHEET 1.

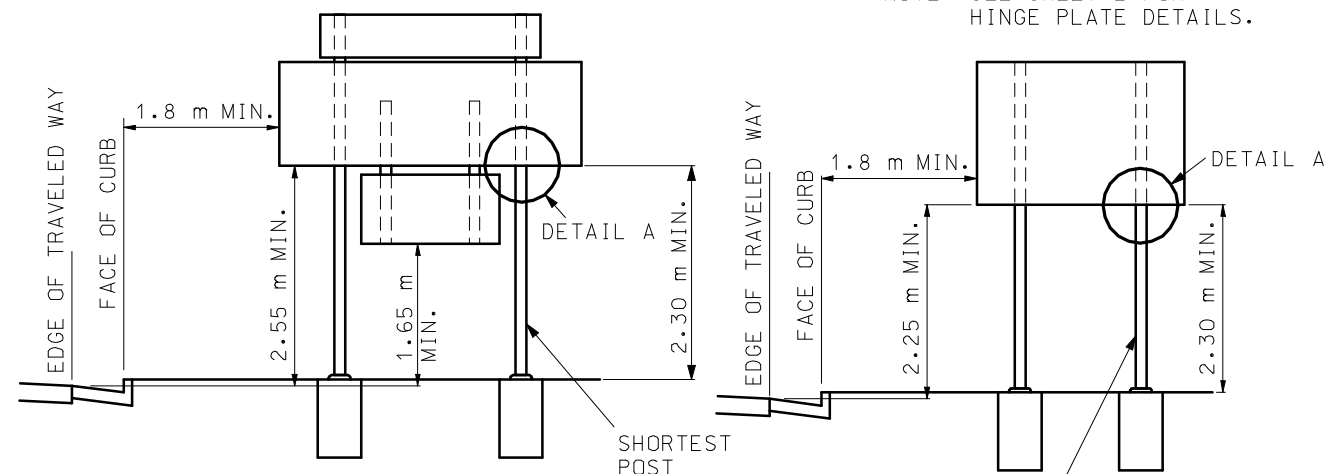
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION			
SIGN MOUNTING DETAILS POST FOR SIGNS 9.1 SQUARE METER OR SMALLER			
DATE: _____	EFFECTIVE: 11-01-2006	M903.03BD	4 11



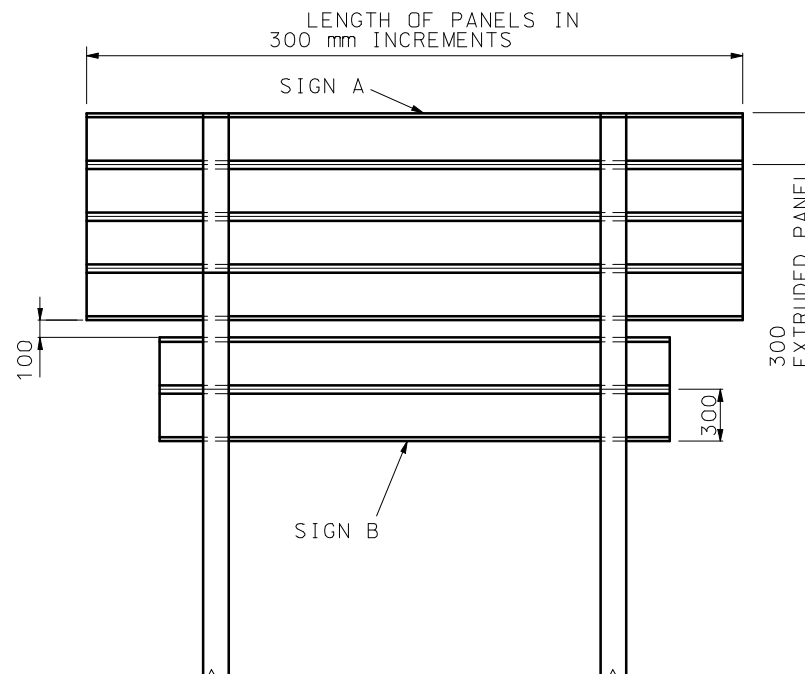
DITCH SECTION



FILL SECTION

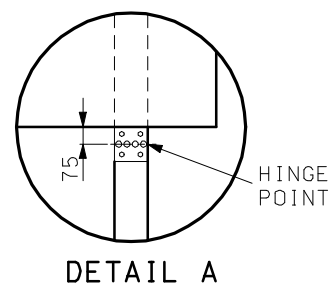


BARRIER CURB SECTIONS



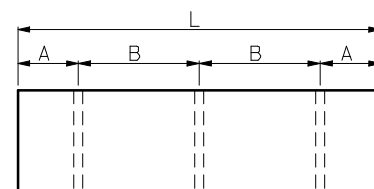
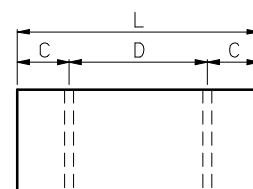
SIGN B MAY BE MOUNTED ABOVE OR BELOW SIGN A AS REQUIRED.

SIGN AND PANEL SPACING



DETAIL A

NOTE: SEE SHEET 2 FOR HINGE PLATE DETAILS.

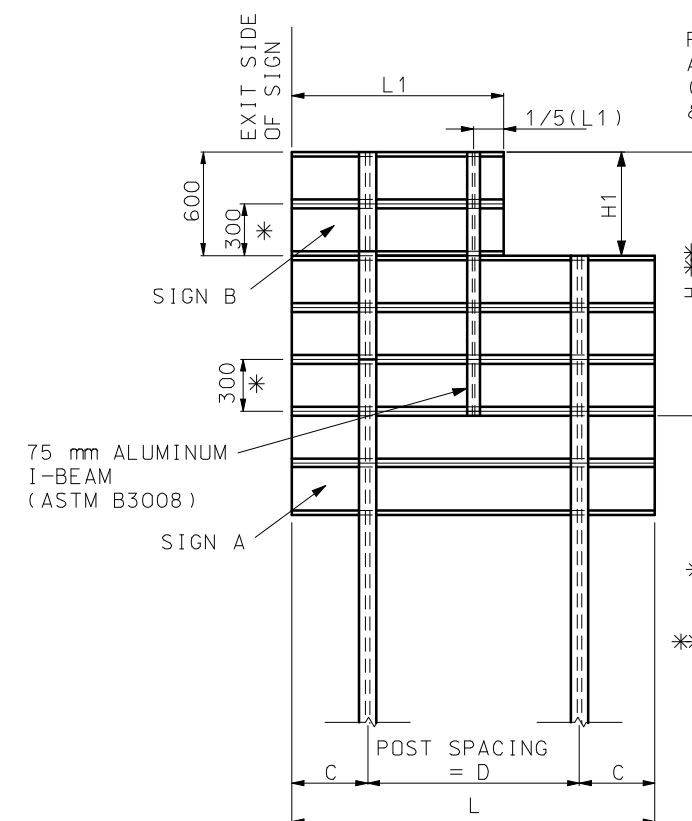


$$A = 1/6(L) \quad C = 1/5(L)$$

$$B = 1/3(L) \quad D = 3/5(L)$$

POST SPACING

FOR L OF 1.8 m TO 5.1 m USE 2 POSTS.
FOR L GREATER THAN 5.1 m USE 3 POSTS.
FOR L LESS THAN 5.1 m, 3 POSTS MAY BE USED DEPENDING ON SOIL CONDITIONS.

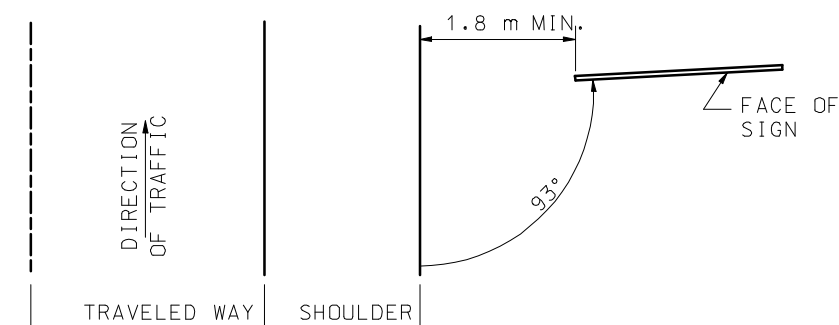


PANEL BOLTS SPACED 600 mm O.C. ALONG SIGN/PANEL INTERFACE. (SEE OTHER DRAWING FOR BOLT & WASHER DETAILS.)

* EXTRUDED ALUMINUM PANEL. SEE OTHER DRAWINGS.

** $H = H + 1"$. H APPLIES TO SIGNS SUSPENDED BELOW THE PRIMARY SIGN IF SECONDARY SIGN IS NOT ATTACHED TO THE MAIN SIGN POSTS.

USE THIS DETAIL FOR EXIT NUMBER PANELS MOUNTED ON GUIDE SIGNS.



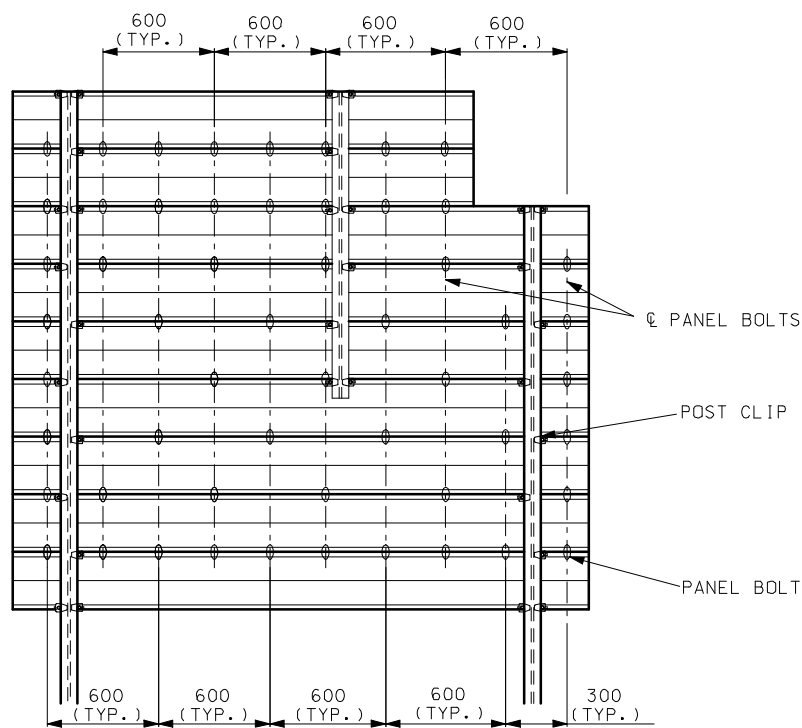
LOCATION SKETCH

GENERAL NOTE:

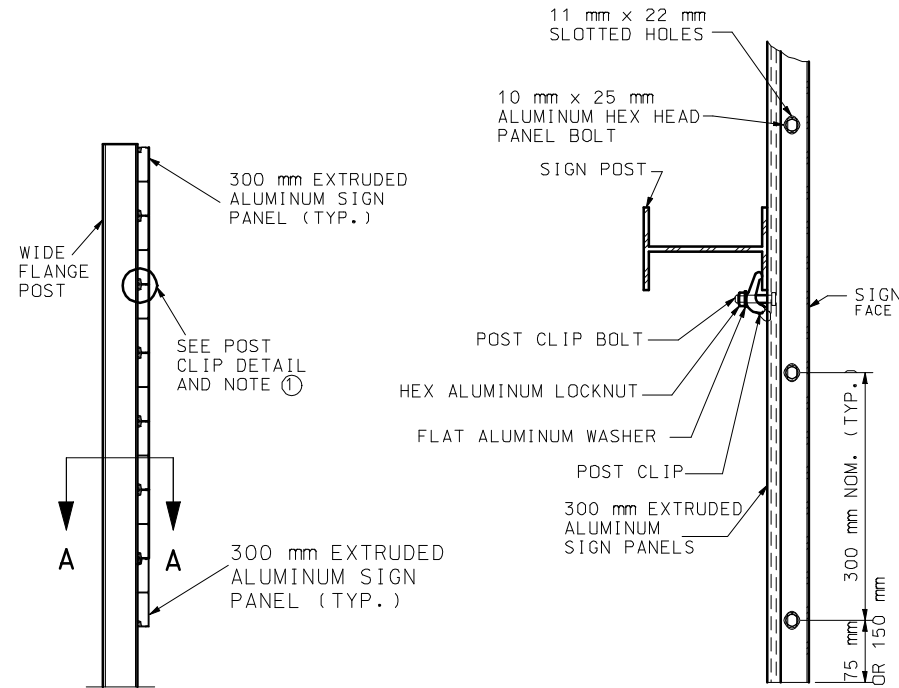
ALL DIMENSIONS SHOWN ARE IN mm UNLESS OTHERWISE NOTED.

REFER TO GENERAL NOTES ON SHEET 1.

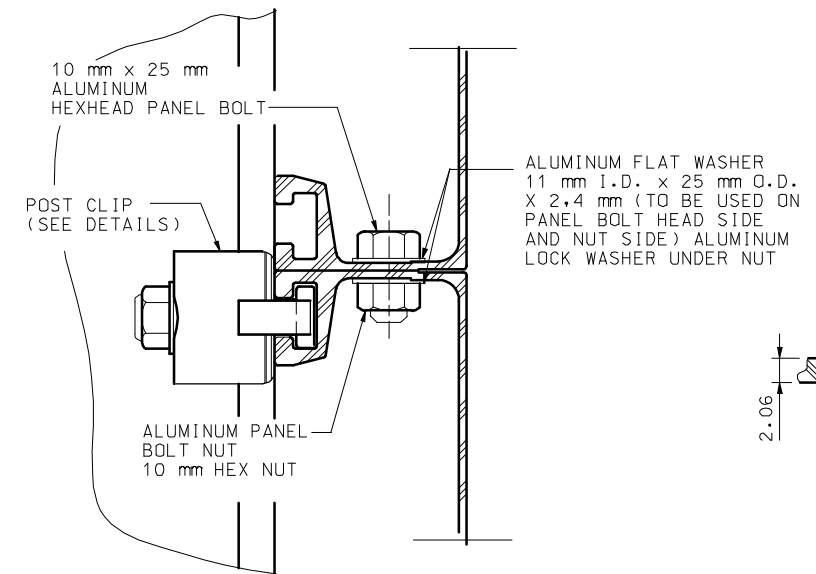
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION			
SIGN MOUNTING DETAILS TYPICAL SECTION AND POST SPACING			
DATE: _____	EFFECTIVE: 11-01-2006	M903.03BD	5
			11



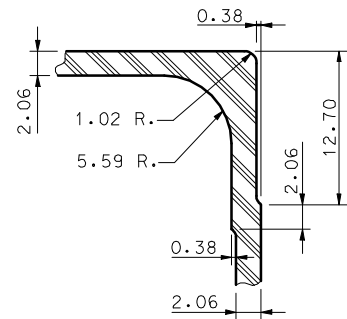
PANEL BOLT LOCATION



END ELEVATION

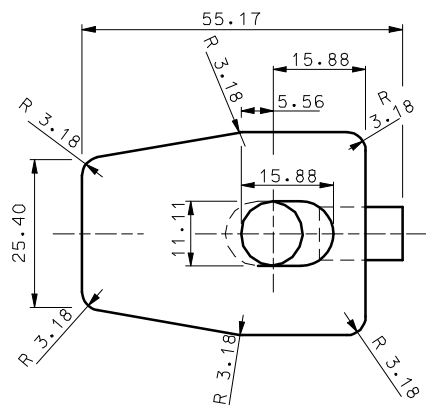


POST CLIP DETAIL

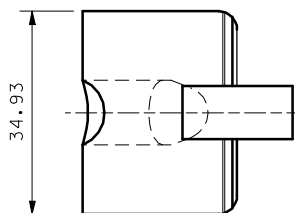


DETAIL "C"

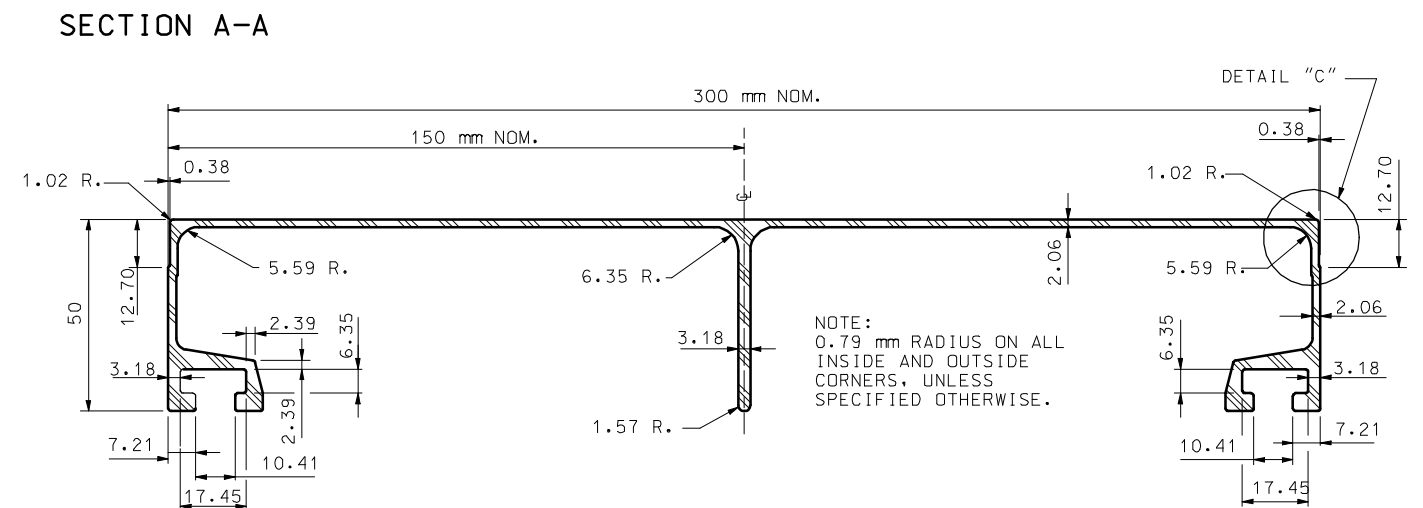
① SIGNS SHALL BE FIELD ATTACHED TO POSTS WITH POST CLIPS AND BOLTS, SEE POST CLIP DETAIL. THE SHANK OF THE POST CLIP BOLT SHALL FIT TIGHTLY AGAINST THE POST FLANGE AFTER THE LOCKNUTS ARE TORQUED. LOCKNUTS ON THE POST CLIP BOLTS SHALL BE TORQUED TO 25.4 mm WHEN USING DRY, CLEAN, UNLUBRICATED THREADS.



PLAN VIEW



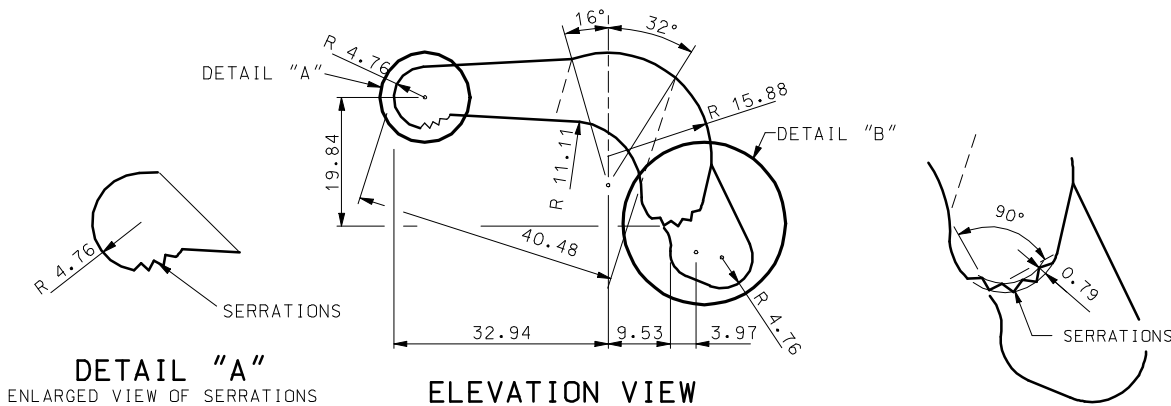
END VIEW



300 mm NOMINAL EXTRUDED ALUMINUM PANEL

MINIMUM MASS = 3.6 kg/m

NOTE: MINIMUM MASS AND THICKNESS DIMENSIONS SHOWN. HEAVIER PANELS MAY BE USED.



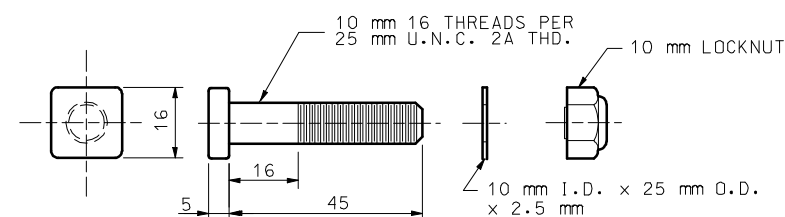
ELEVATION VIEW

POST CLIP

POST CLIPS SHALL BE ASTM B 108, 356-T6 ALUMINUM ALLOY.

DETAIL "B"

ENLARGED DETAIL OF SERRATIONS
SAW GATING AS SHOWN
(APPROXIMATELY FLAT PERMISSABLE)



POST CLIP BOLT
WITH FLAT WASHER AND LOCKNUT

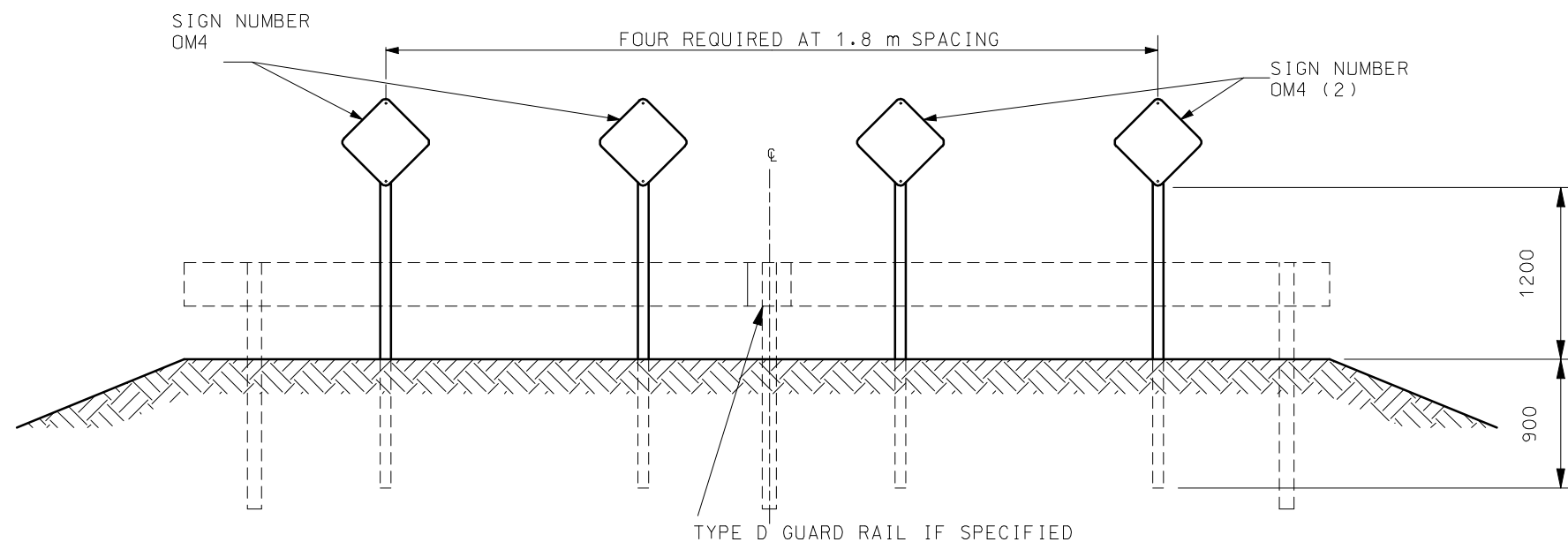
NOTE: SQUARE BOLT HEAD SHOWN. RECTANGULAR BOLT HEAD WITH LEAST DIMENSION OF 16 mm MAY BE USED.

BOLT - 45mm x 10 mm ALUMINUM
HEX LOCKNUT - 10 mm ALUMINUM
WASHER - ALUMINUM

GENERAL NOTE:

ALL DIMENSIONS SHOWN ARE IN mm UNLESS OTHERWISE NOTED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION			
SIGN MOUNTING DETAILS EXTRUDED ALUMINUM PANEL DETAILS			
DATE: _____	EFFECTIVE: 11-01-2006	M903.03BD	6
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FOUR REQUIRED AT 1.8 m SPACING

SIGN NUMBER OM4

SIGN NUMBER OM4 (2)

1200

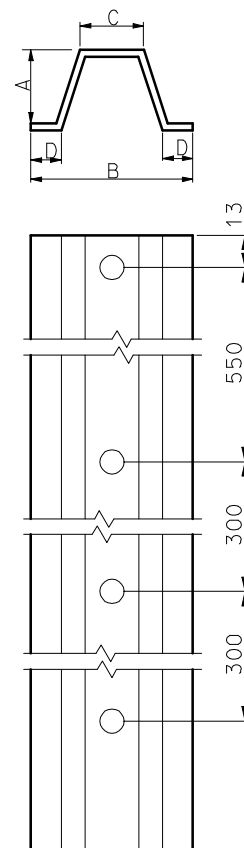
900

TYPE D GUARD RAIL IF SPECIFIED

MOUNTING DETAILS
(END OF ROAD OR STREET)

TYPE 4 OBJECT MARKER
SIGN OM4

(2) RED MODOT TYPE 7 REFLECTIVE SHEETING ON
1.5 mm SHEET ALUMINUM.



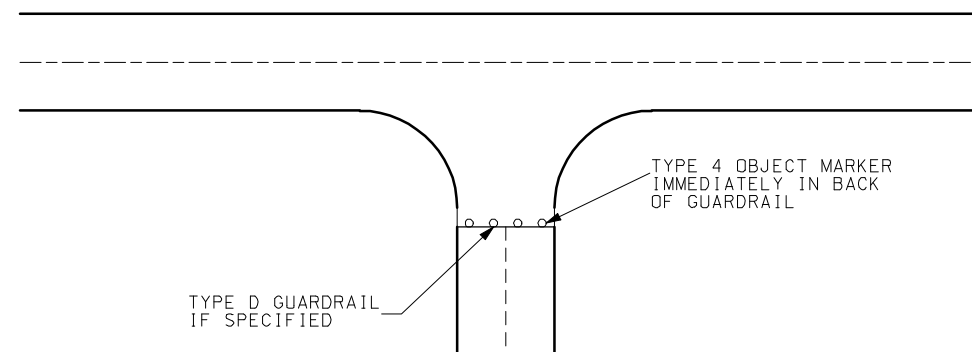
HOLE PUNCHING SHOWN IS THE MINIMUM NUMBER AND SPACING ALLOWED. THE MAXIMUM HOLE PUNCHING ALLOWED IS 10 mm DIAMETER HOLES, 25 mm CENTER TO CENTER, BEGINNING 25 mm FROM THE END AND CONTINUING THE ENTIRE LENGTH OF THE POST.

STEEL OBJECT MARKER POST					
LIMITS	kg/m (3)	DIMENSIONS - mm			
		A	B	C	D
MIN.	2.68	32	64	25	12
MAX.	3.35	41	83	32	18

(3) MASS BEFORE GALVANIZING OR PUNCHING. LIMITS SHOWN ARE ABSOLUTE. NO FURTHER WEIGHT, DIMENSIONAL OR COMMERCIAL TOLERANCE WILL BE ACCEPTABLE.

OBJECT MARKER POST AND FASTENER DETAILS

FOUL THREADS OF BOLT AS APPROVED BY THE ENGINEER.



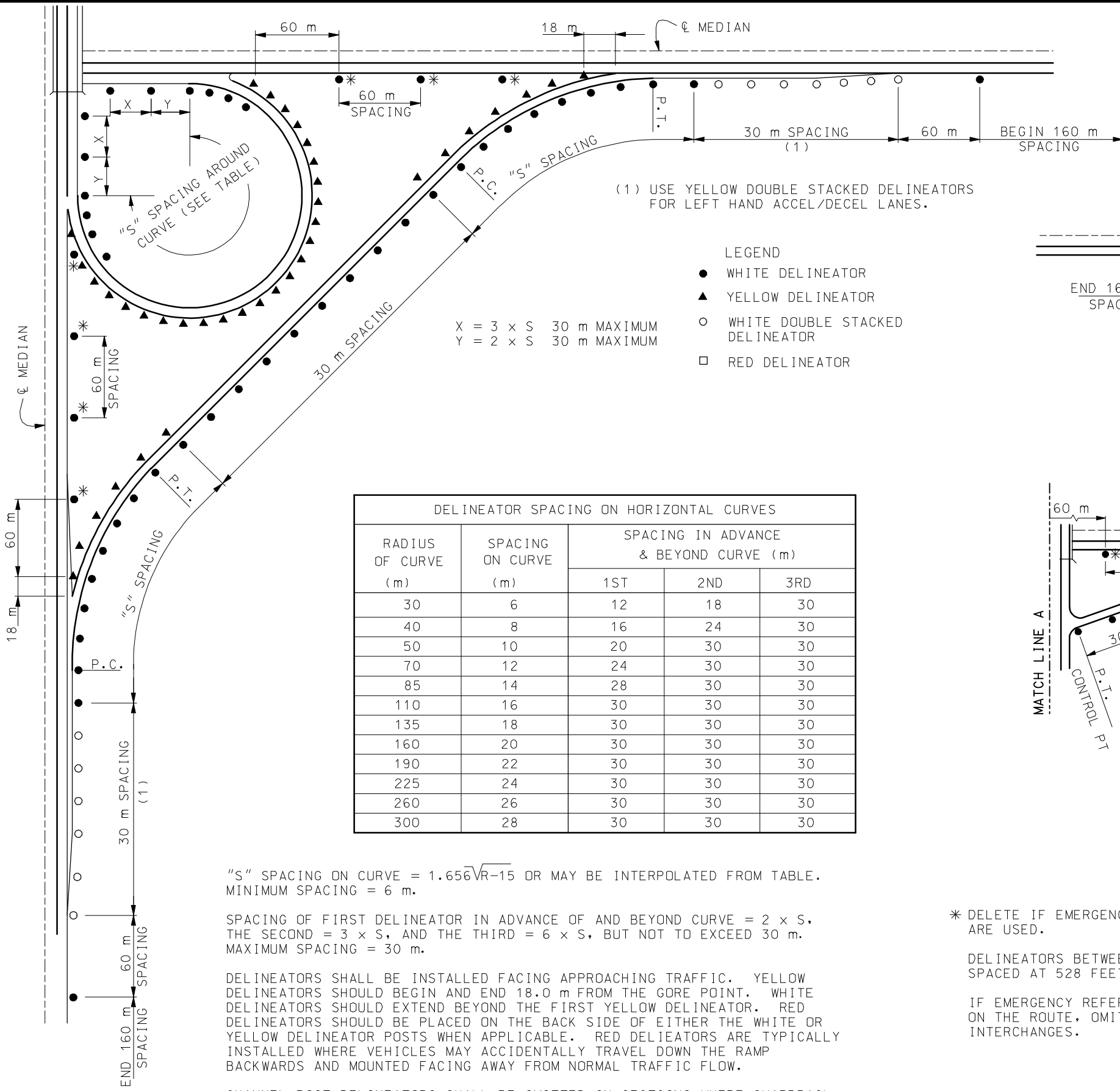
TYPICAL ROAD CLOSED

GENERAL NOTES:

ALL DIMENSIONS SHOWN ARE IN mm UNLESS OTHERWISE NOTED.

THE CONTRACT UNIT PRICE FOR EACH MILE MARKER AND TYPE 4 OBJECT MARKER SHALL INCLUDE SIGN PANEL, REFLECTIVE SHEETING, AND POST, REGARDLESS OF LENGTH.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION			
		SIGN MOUNTING DETAILS DELINEATORS, MILE MARKERS AND OBJECT MARKERS	
DATE: _____	EFFECTIVE: 11-01-2006	M903.03BD	7 11



(1) USE YELLOW DOUBLE STACKED DELINEATORS FOR LEFT HAND ACCEL/DECEL LANES.

- LEGEND
- WHITE DELINEATOR
 - ▲ YELLOW DELINEATOR
 - WHITE DOUBLE STACKED DELINEATOR
 - RED DELINEATOR

X = 3 x S 30 m MAXIMUM
Y = 2 x S 30 m MAXIMUM

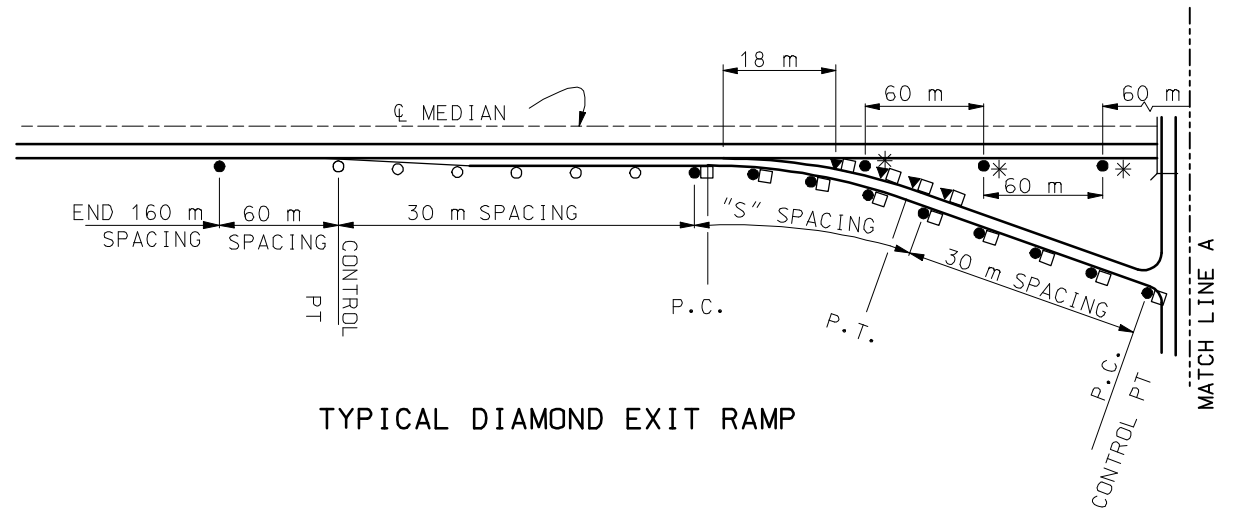
DELINEATOR SPACING ON HORIZONTAL CURVES				
RADIUS OF CURVE (m)	SPACING ON CURVE (m)	SPACING IN ADVANCE & BEYOND CURVE (m)		
		1ST	2ND	3RD
30	6	12	18	30
40	8	16	24	30
50	10	20	30	30
70	12	24	30	30
85	14	28	30	30
110	16	30	30	30
135	18	30	30	30
160	20	30	30	30
190	22	30	30	30
225	24	30	30	30
260	26	30	30	30
300	28	30	30	30

"S" SPACING ON CURVE = $1.656\sqrt{R-15}$ OR MAY BE INTERPOLATED FROM TABLE. MINIMUM SPACING = 6 m.

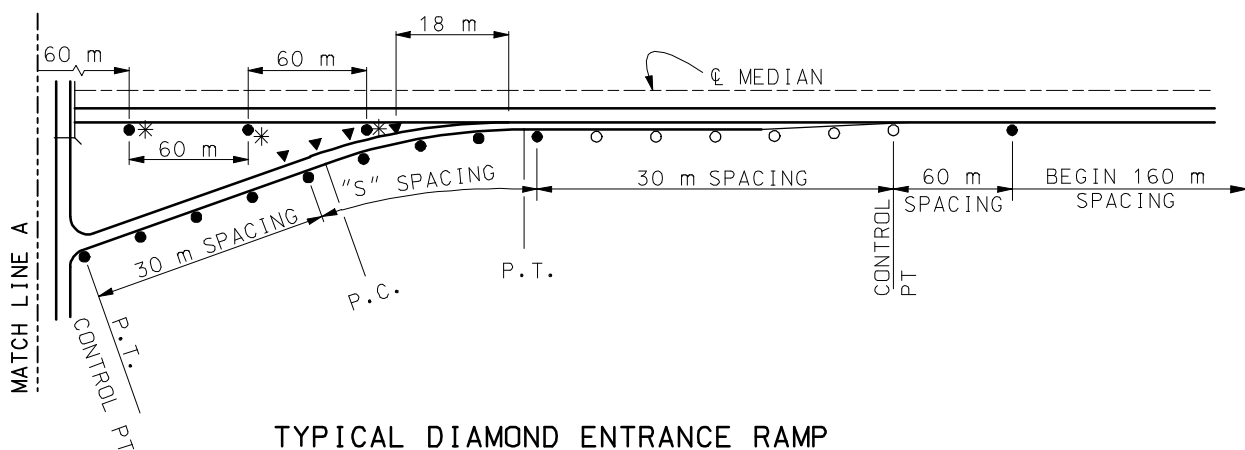
SPACING OF FIRST DELINEATOR IN ADVANCE OF AND BEYOND CURVE = 2 x S, THE SECOND = 3 x S, AND THE THIRD = 6 x S, BUT NOT TO EXCEED 30 m. MAXIMUM SPACING = 30 m.

DELINEATORS SHALL BE INSTALLED FACING APPROACHING TRAFFIC. YELLOW DELINEATORS SHOULD BEGIN AND END 18.0 m FROM THE GORE POINT. WHITE DELINEATORS SHOULD EXTEND BEYOND THE FIRST YELLOW DELINEATOR. RED DELINEATORS SHOULD BE PLACED ON THE BACK SIDE OF EITHER THE WHITE OR YELLOW DELINEATOR POSTS WHEN APPLICABLE. RED DELIEATORS ARE TYPICALLY INSTALLED WHERE VEHICLES MAY ACCIDENTALLY TRAVEL DOWN THE RAMP BACKWARDS AND MOUNTED FACING AWAY FROM NORMAL TRAFFIC FLOW.

CHANNEL POST DELINEATORS SHALL BE OMITTED ON SECTIONS WHERE GUARDRAIL IS PRESENT. THESE PORTIONS SHALL BE DELINEATED UTILIZING THE GUARDRAIL DELINEATORS. IN AREAS WHERE RED DELINEATORS ARE INDICATED. RED RETRO-REFLECTIVE SHEETING WILL BE PLACED ON THE BACK SIDE OF THE GUARDRAIL DELINEATOR.



TYPICAL DIAMOND EXIT RAMP



TYPICAL DIAMOND ENTRANCE RAMP

TYPICAL INTERCHANGE

GENERAL NOTES:

ALL DIMENSIONS SHOWN ARE IN mm UNLESS OTHERWISE NOTED.

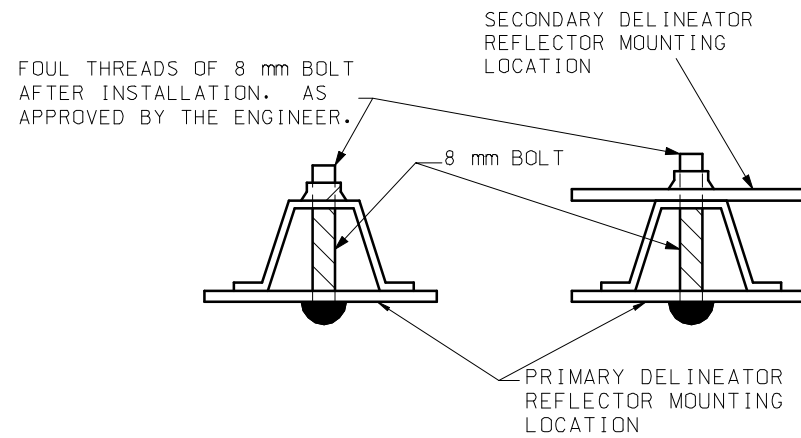
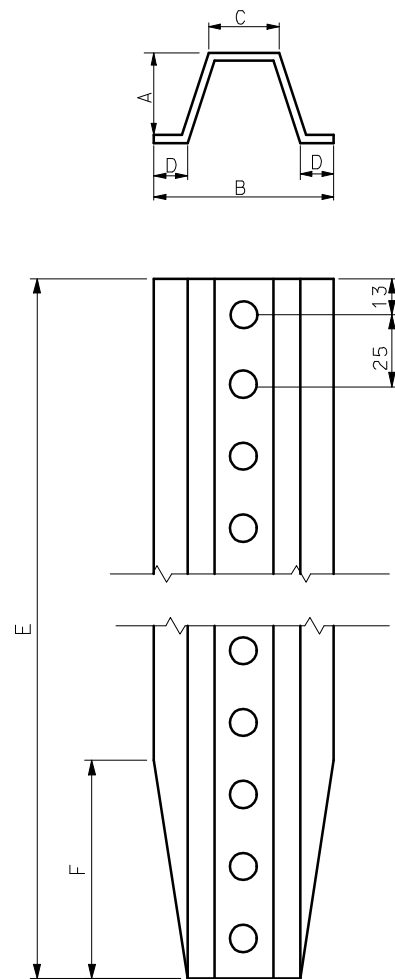
THE CONTRACT UNIT PRICE FOR EACH CHANNEL POST DELINEATOR SHALL INCLUDE THE REFLECTOR, FASTENERS AND POST.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION			
		SIGN MOUNTING DETAILS CHANNEL POST DELINEATORS	
DATE: _____	EFFECTIVE: 11-01-2006	M903.03BD	8
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* DELETE IF EMERGENCY REFERENCE MARKERS ARE USED.

DELINEATORS BETWEEN INTERCHANGES SPACED AT 528 FEET.

IF EMERGENCY REFERENCE MARKERS ARE USED ON THE ROUTE, OMIT DELINEATORS BETWEEN INTERCHANGES.

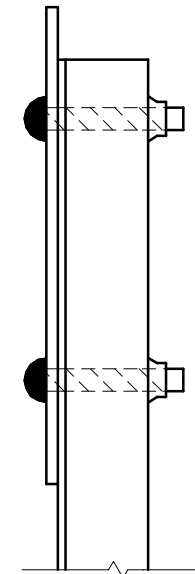


HOLE PUNCHING TO EQUAL 10 mm DIAMETER HOLES, ONE INCH CENTER TO CENTER, BEGINNING 13 mm FROM THE END AND CONTINUING THE ENTIRE LENGTH OF THE POST.

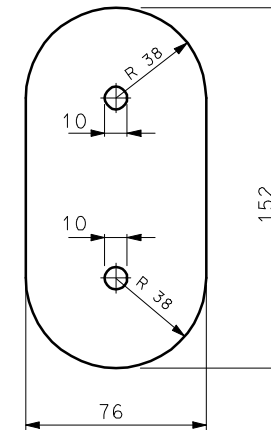
DELINEATOR POST							
LIMITS	kg/m (2)	DIMENSIONS - mm					
		A	B	C	D	E	F
NOMINAL	1.67	25	57	22	10	2130	25
TOLERANCE	± 5%	±3	±3	±3	±3	±25	±7

(2) WEIGHT BEFORE GALVANIZING OR PUNCHING.

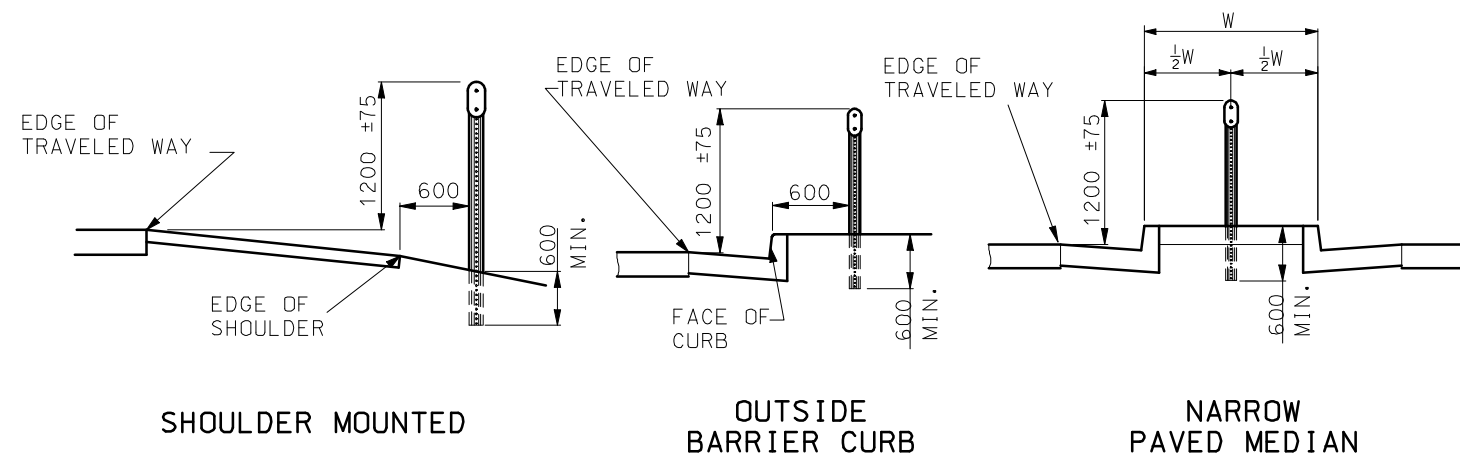
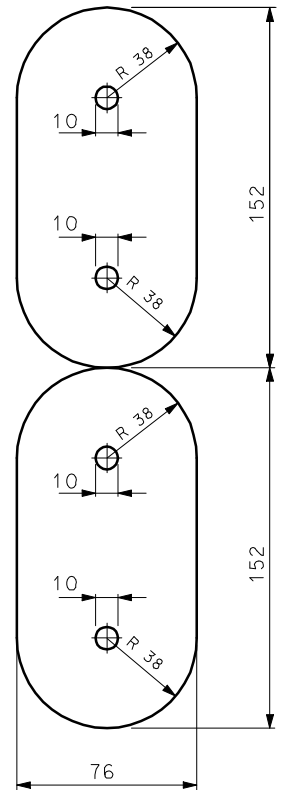
DELINEATOR POST AND FASTENER DETAILS



CHANNEL POST DELINEATOR REFLECTOR



DOUBLE STACKED CHANNEL POST DELINEATOR REFLECTOR

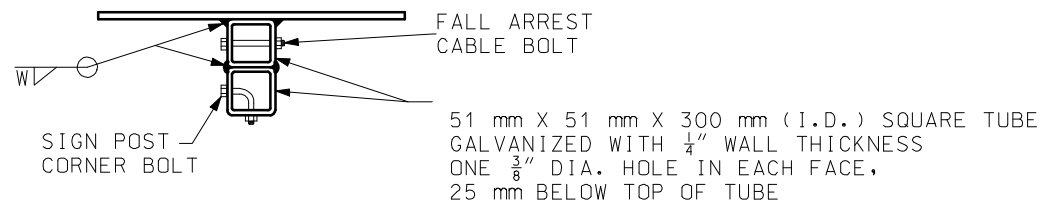


DELINEATOR MOUNTING DETAILS

GENERAL NOTES:

ALL DIMENSIONS SHOWN ARE IN mm UNLESS OTHERWISE NOTED.

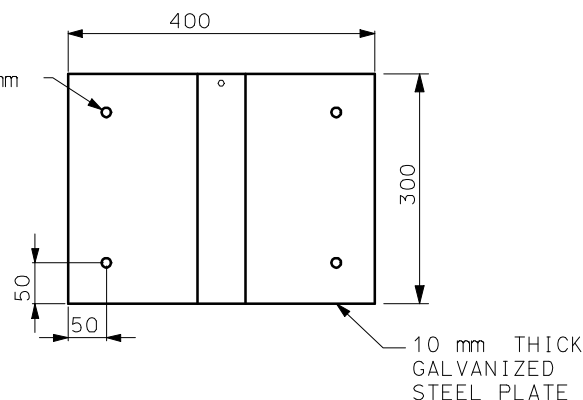
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION			
SIGN MOUNTING DETAILS CHANNEL POST DELINEATORS			
DATE: _____	EFFECTIVE: 11-01-2006	M903.03BD	9 11



10 mm DIA. HOLE FOR CORNER BOLT

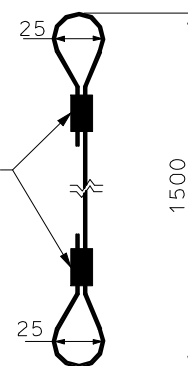
10 mm DIA HOLE IN EACH SIDE OF TUBE FOR 8 mm THROUGH BOLT TO RETAIN FALL ARREST CABLE

14 mm DIA.



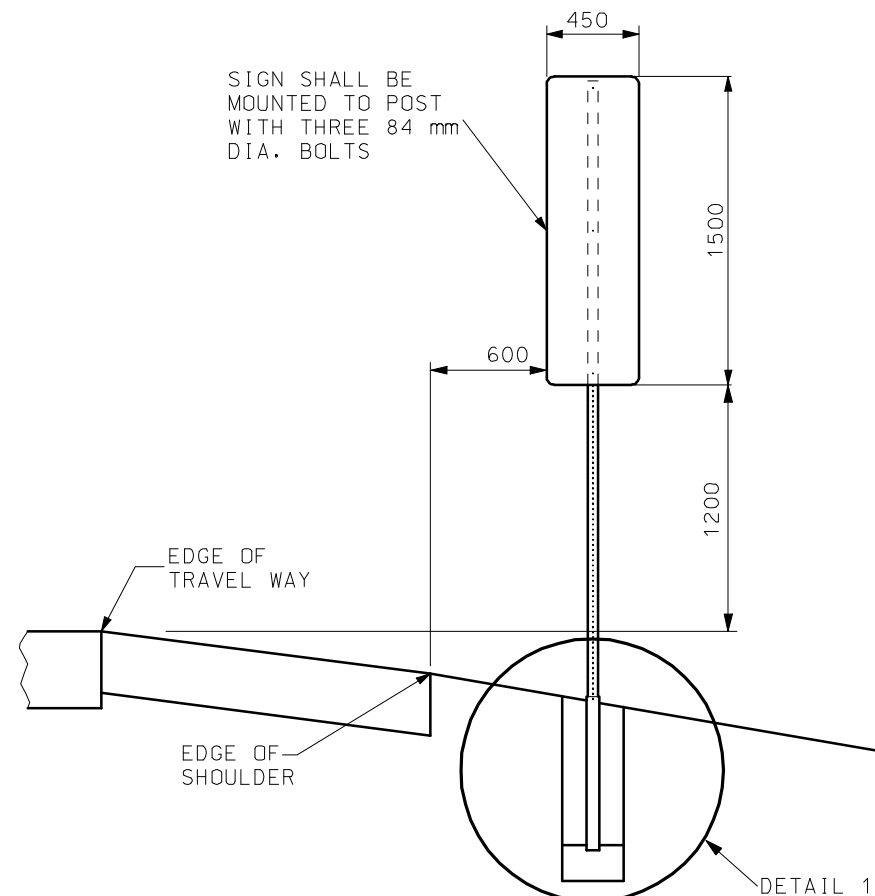
MOUNTING PLATE DETAIL

MECHANICAL CRIMP TYPE CONNECTORS

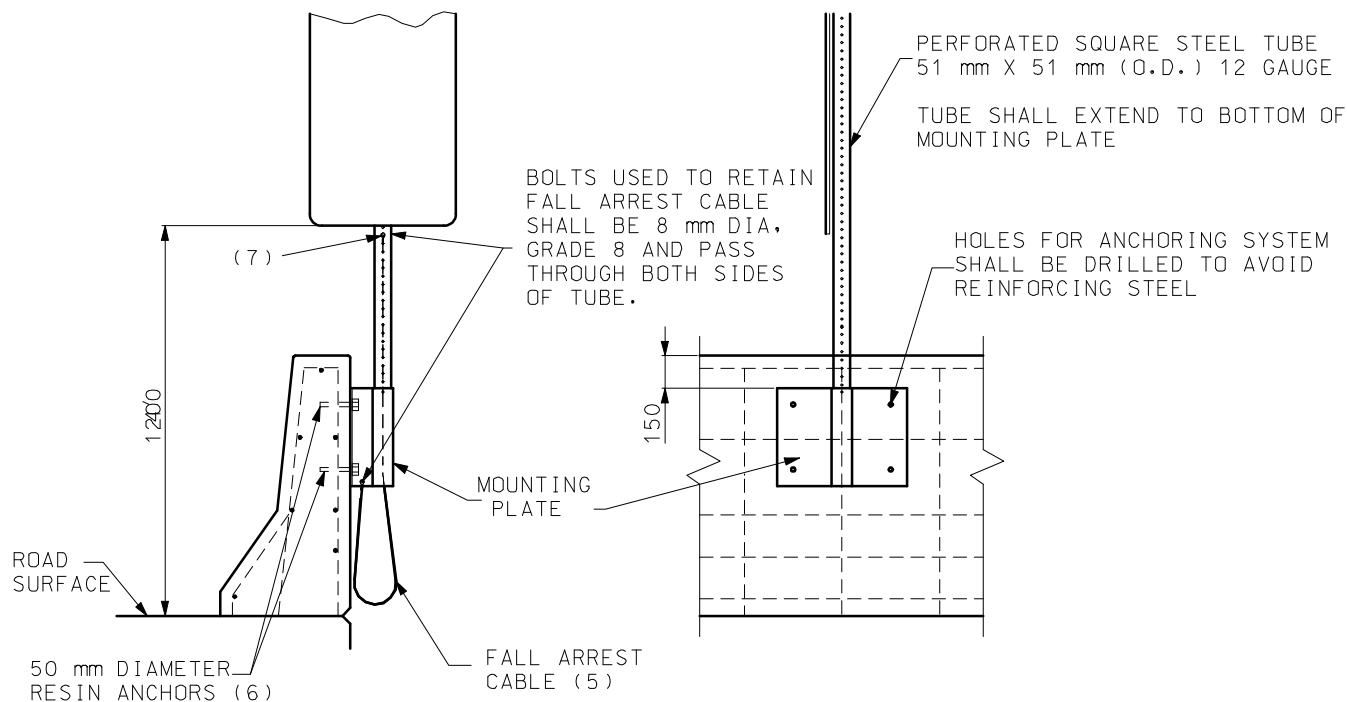


FALL ARREST CABLE DETAIL

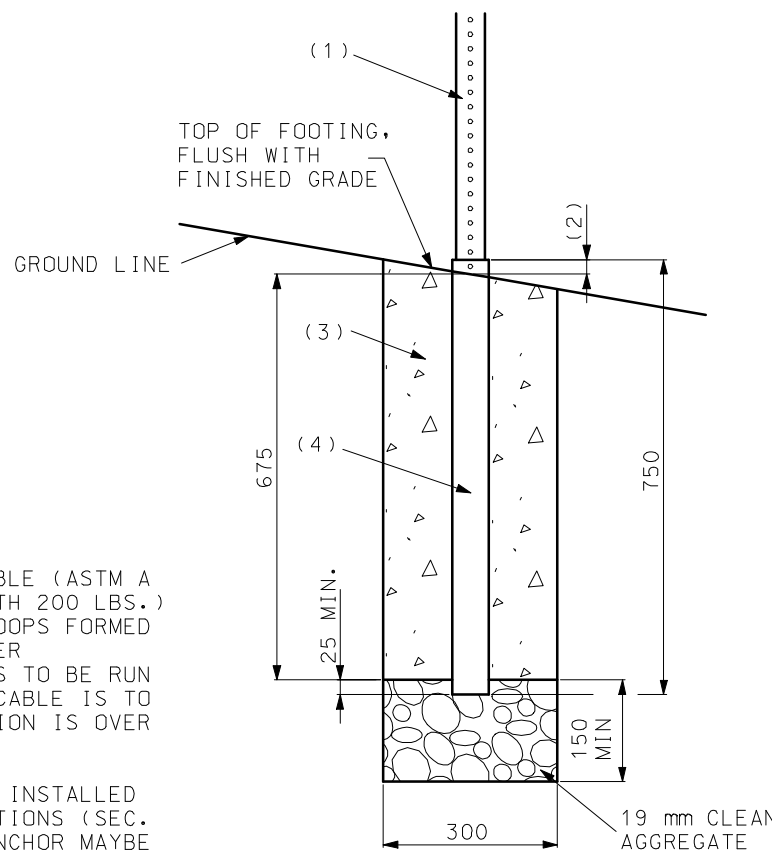
SIGN SHALL BE MOUNTED TO POST WITH THREE 84 mm DIA. BOLTS



GROUND INSTALLATION



BARRIER WALL INSTALLATION



DETAIL 1

GENERAL NOTES:

ALL DIMENSIONS SHOWN ARE IN mm UNLESS OTHERWISE NOTED.

PERFORATED SQUARE STEEL TUBE SHALL BE SECURED TO FOUNDATION TUBE OR BARRIER WALL MOUNTING PLATE WITH A CORNER BOLT PER PERFORATED SQUARE STEEL TUBE MANUFACTURER'S SPECIFICATION.

THE CONTRACT UNIT PRICE FOR REFERENCE MARKER SHALL INCLUDE SIGN PANEL, FASTENER, POST AND ALL MATERIAL CONTAINED IN THE FOUNDATION OR BARRIER WALL MOUNTING HARDWARE.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION			
		SIGN MOUNTING DETAILS EMERGENCY REFERENCE MARKERS	
DATE: _____	EFFECTIVE: 11-01-2006	M903.03BD	10
			11

(1) PERFORATED SQUARE STEEL TUBE 51 mm X 51 mm (O.D.) 12 GAUGE. TUBE SHALL EXTEND A MINIMUM OF 600 mm BELOW THE TOP OF THE FOUNDATION TUBE.

(2) TUBE TO EXTEND ABOVE FOUNDATION ONLY ENOUGH TO ALLOW BOLT TO BE INSERTED 50 mm MAXIMUM.

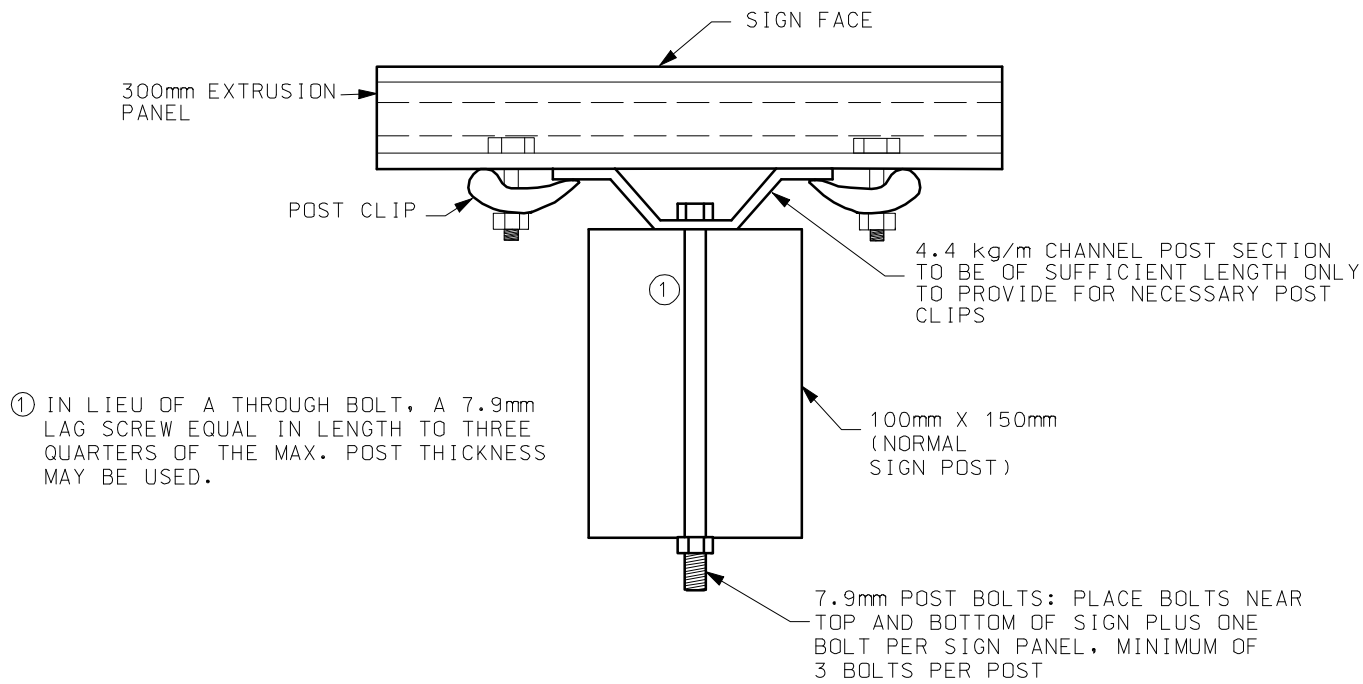
(3) CONCRETE MIX TO HOLD FOUNDATION TUBE PLUMB WITHOUT BRACING SHALL HAVE A MINIMUM OF 310 kg OF CEMENT PER CUBIC METER AND A MAXIMUM SLUMP OF 64 mm.

(4) 63 mm x 63 mm x 750 mm (O.D.) SQUARE TUBE GALVANIZED 7 GAGE (2 mm) WITH ONE 10 mm DIA. HOLE IN EACH FACE, 25 mm BELOW TOP OF TUBE.

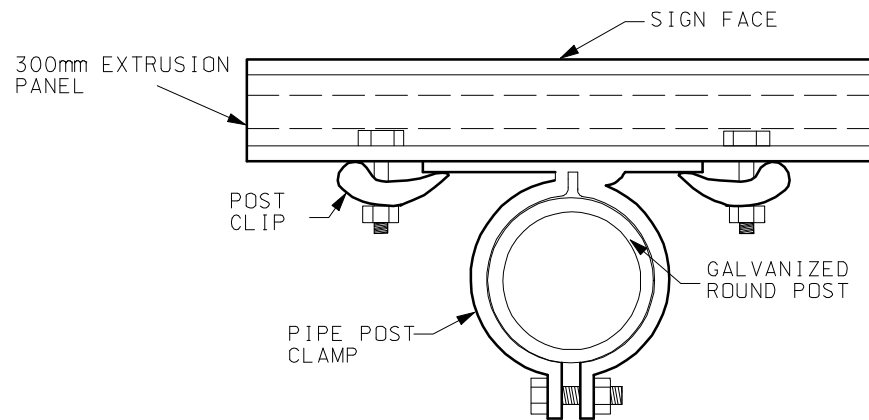
(5) 4 mm x 1500 mm LONG STAINLESS STEEL CABLE (ASTM A 492 TYPE 304, MINIMUM BREAKING STRENGTH 200 LBS.) WITH A 25 mm DIA. LOOP AT EACH END LOOPS FORMED BY MECHANICAL CRIMP TYPE CONNECTION PER MANUFACTURER'S SPECIFICATIONS. CABLE IS TO BE RUN INSIDE PERFORATED SQUARE STEEL TUBE. CABLE IS TO BE USED ONLY WHEN SIGN MOUNTING LOCATION IS OVER ANOTHER TRAVELWAY.

(6) 50 mm DIAMETER RESIN ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD SPECIFICATIONS (SEC. 1039). AN APPROVED MECHANICAL TYPE ANCHOR MAYBE USED THE DEVICE EQUALS OR EXCEED THE PULL TEST REQUIREMENTS OF SEC. 1039.

(7) FALL ARREST CABLE TO BE SECURED TO NEXT FULL HOLE BELOW SIGN

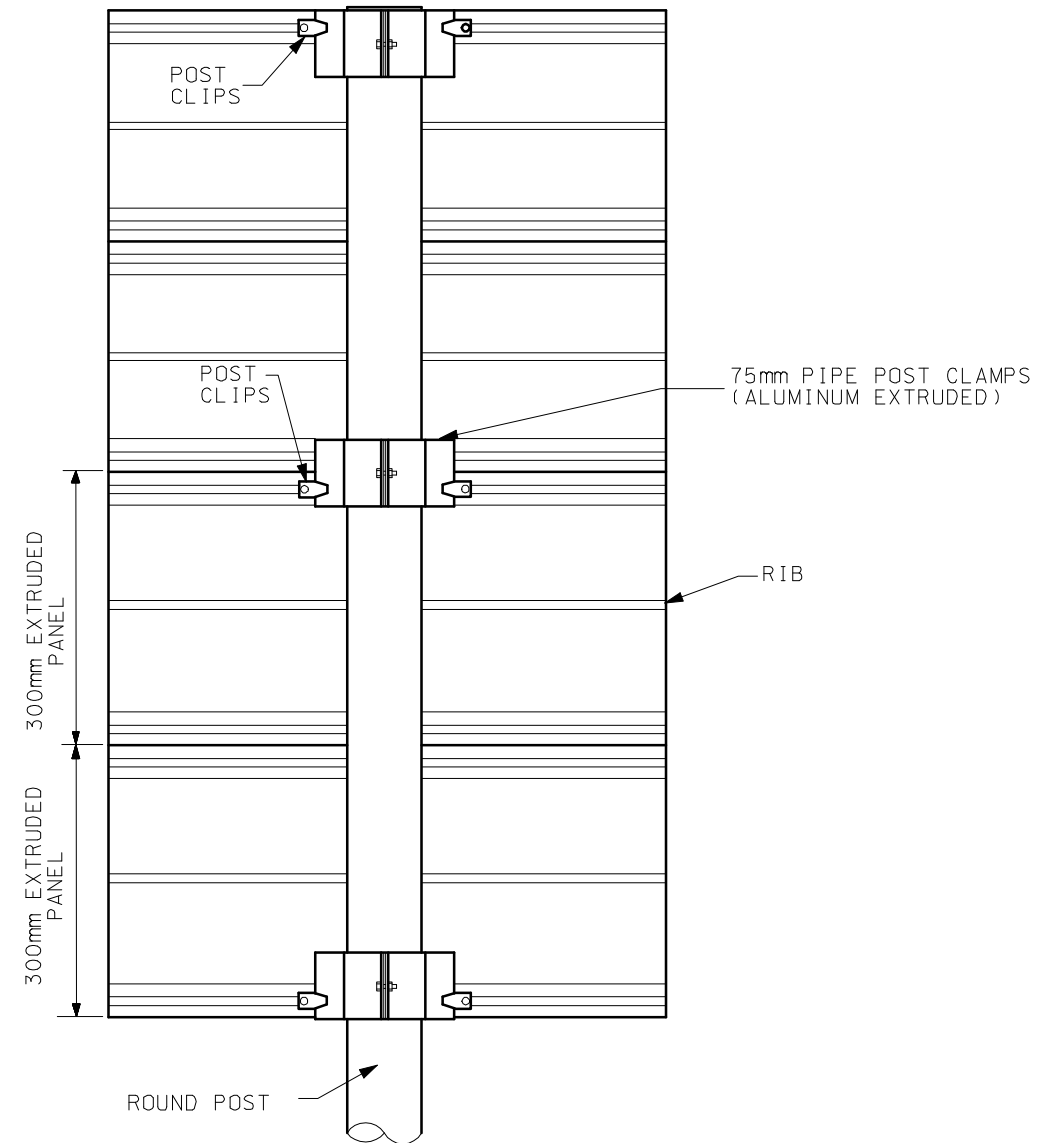
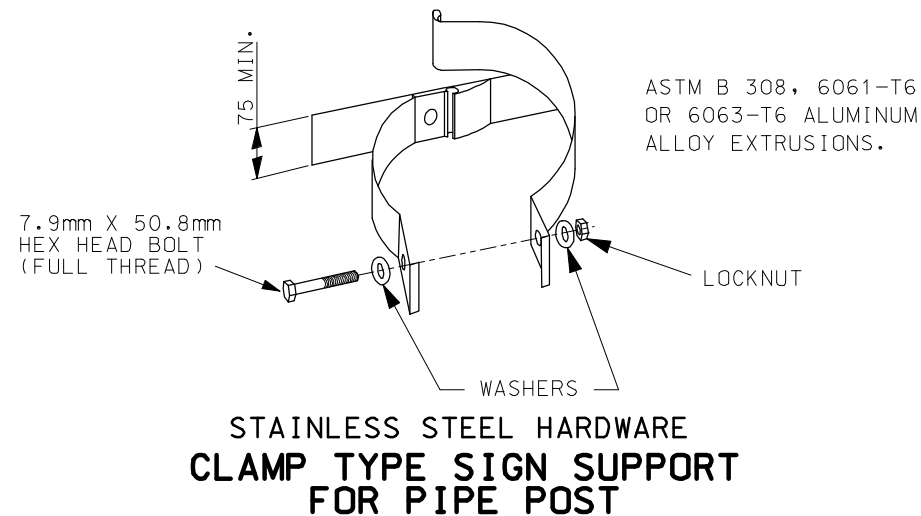


PLAN VIEW
MOUNTING DETAILS FOR EXTRUDED
PANELS ON WOOD 100mm X 150mm POST



PLAN VIEW
MOUNTING DETAILS FOR EXTRUDED PANELS
ON ROUND PIPE POST

NUMBER OF BOLTS TO ATTACH STEEL CHANNEL TO WOOD POST	
SIGN HEIGHT (mm)	NO. OF BOLTS* PER WOOD POST USED
300	2
600	3
900	4
1200	5
1500	6
1800	7
2100	8
*LAG SCREWS MAY BE SUBSTITUTED	



TYPICAL POST CLIP MOUNTING DETAILS
FOR ROUND PIPE POSTS

GENERAL NOTES:

ALL DIMENSIONS SHOWN ARE IN mm UNLESS OTHERWISE NOTED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION			
		SIGN MOUNTING DETAILS EXTRUDED PANEL ATTACHMENTS FOR SIGNS 2.8 m ² OR SMALLER	
DATE: _____	EFFECTIVE: 11-01-2006	M903.03BD	11 11